

THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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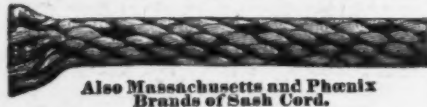
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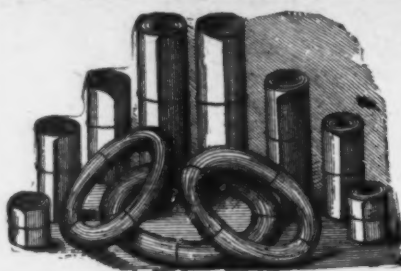
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THE IRON AGE

THURSDAY, MAY 30, 1901.

The McCormick Foundries.

The McCormick Harvesting Machine Company of Chicago have the largest output of gray iron castings of any manufacturing plant in the world. The daily melt runs from 300 to 360 tons, the normal output for a day of ten hours being about 315 tons. This record seems more remarkable in view of the fact that both steel and malleable castings are used wherever possible in a twine binder, in order to economize in the weight of the machine, which, during its average life, is drawn perhaps 1000 miles over soft harvest fields. Gray iron is used only in the gears and minor parts and fittings of a binder, and in the binder frame, which holds the compressing and tying mechanism. In fact, the greater

castings, such as binder frames, mower wheels, mower main frames and main wheels for reapers and corn binders. The rattlers and the chipping rooms are located on the fourth floor, from which the corn binder wheels and the binder frames are trucked over covered bridges to adjoining buildings. The mower frames and wheels pass down to the third floor, where the various operations of boring and fitting are carried on, the complete mowers being assembled and painted before leaving the building for the warehouses.

Molding Machines.

Both foundries are equipped throughout with Pridmore molding machines. This type of molding machine, which has in recent years been introduced into general use in large foundries throughout the country, was in-



THE MCCORMICK FOUNDRIES.

part of the tonnage of the McCormick foundries consists of mowers, of which the company make upward of 100,000 annually. Repairs for old machines also contribute heavily to the foundry tonnage. It is estimated that there are some 2,000,000 McCormick machines in use throughout the world, and many of these machines have been used 15, 20 and even 30 years. Castings are made regularly from more than 10,000 different patterns, and, during a year, runs of 250,000 from one duplicate set of patterns are not uncommon. Although the company are the oldest in their line, the business having been established in Chicago in 1847 by Cyrus H. McCormick, the limit to their growth seems far in the future, as their tonnage increases year after year, having more than doubled in the past ten years.

The large output of the company has made it necessary to carry on the foundry work in two separate buildings, but under one general foreman, the two divisions being known as No. 1 and No. 2 foundries. No. 1 is a top floor foundry, occupying the fifth floor of a building 660 feet in length, of irregular width, affording about 60,000 square feet of floor space for molding. This foundry is run exclusively on the company's heavy

vented by Henry E. Pridmore while he was in the employ of the McCormick Company as chief of the staff of inventors and head of the pattern department. The machines used in both foundries are of the stationary stand type, and to their use is due the large output of the foundries, relative to the floor space occupied. There is practically no hand molding in either foundry. The economy in labor due to the use of these machines shows to peculiar advantage in No. 1 foundry, where the cost of labor, on difficult castings, has been reduced to about one-tenth of the cost of skilled hand labor. The loss due to bad castings has been reduced to about 3 per cent. under the present system, with unskilled labor, as compared with 6 per cent. or more under the former system, when skilled hand labor was employed.

The Continuous Melting and Molding System.

No. 1 foundry has two cupolas, lining up 60 inches in diameter and 12 feet in height, which are run on alternate days on the continuous melting system. By this system 200 tons have been melted in one cupola in a day of ten hours. A charge of 4000 pounds of iron is put in every six to eight minutes, depending on the

amount of work to be done in a day. About 30 minutes elapse from the time the iron is charged until it is run off.

This foundry is run also on the continuous molding system. The floor space is divided in sections, and the molders work at one time on about one-quarter of the total floor space. Molding, pouring and shaking out go on simultaneously on different sections of the floor. As soon as one section has been molded up the molders pass to the next section, and thus the work goes on continuously, hour after hour, the molders returning to a section, on some classes of work, in two hours after they have previously molded it up. This continuous system gives about four times the output from the same floor space as the old system of molding in heats, and it has the further advantage of flexibility, as the foundry can be run any number of hours that may be desired each day. The works run ten hours throughout the year, but in case of an unusual demand, as just before harvest, the men can work late in the evening, or they can be succeeded by a night shift without any delay or interruption in the continuous molding system.

Handling Materials.

All the work is handled in No. 1 foundry by air lifts. The flask for a mower frame, when filled with sand, will weight about 1200 pounds, of which the cope weighs 700 and the drag 500 pounds. The other castings made here are not so heavy, but still require power to handle them. The irregular shape of the building divides the molding floor into three large rectangular sections. Each section is divided longitudinally by the sand conveyor, which runs overhead, dropping the sand into dumps or "boots," where it is held until wanted by the molders, the molding machines being lined up along each side of the conveyor. Covering the space on each side of the conveyor is found a series of traveling cranes, which reach every point of their respective sections of the floor, one crane being in use for each molding machine. Each crane is a simple steel beam, with travelers at each end running on a track, and a single air cylinder suspended from a traveler on the beam. The cylinder has a long stroke, lifting directly on the mold, which is thus suspended and lowered on an air cushion while in transit from the molding machine to the floor. Three or more men work together on these heavy castings, and as they naturally become expert in their movements, the work is carried on with great rapidity and economy in labor.

Handling Sand.

The devices for handling the sand form a very important part of the system of this foundry. In shaking out, the flasks are carried by the air lift to the conveyor line. Here the sand falls and is shoveled through a trap in the floor to a conveyor located on the fourth floor. This conveyor, one of a series employed in the different sections of the foundry, consists of a trough into which the sand falls and is conveyed by a reciprocating frame which travels back and forth in a straight line above the trough, having scrapers attached to the moving frame. When the scrapers travel in the direction in which the sand is to be conveyed they are held rigidly and thus shove the sand along, but on the return stroke a hinge permits them to swing back so that they pass clear of the sand, until they reach the end of the return stroke. At the end of the conveyor the sand is fed into a revolving riddle, and as it sifts from the riddle it is sprayed by a stream of water, which wets it down. The water is fed through a pipe which has an automatic valve, controlled by the weight of the sand that is fed into the machine. When a larger volume of sand is passing through the machine the valve is opened wider and thus throws a larger spray, but when the volume of sand is lighter the valve is closed correspondingly, thus effecting automatic regulation of the supply of water. The sand passes out of the machine into a vertical elevator, which carries it up to the overhead conveyor on the fifth floor, of the same type as the one just described on the fourth floor. This conveyor carries the sand back above the molding floor and distributes it along the length of the building, to be used again. At

intervals of about 8 feet are pipes, through which the sand falls into "boots," placed above and near the molding machines, to be dumped on the floor for use as needed. An illustration of a portion of this foundry is herewith given, showing the features which have been described.

On the fourth floor are located 48 tumbling barrels, arranged in pairs and driven by friction pulleys. A noticeable feature of this tumbling room is the absence of dust. The barrels are covered with wooden housings, from which air pipes lead to a power house smoke stack, which rises just outside the wall of the building. The draft in this stack creates a suction through the air pipes leading to it sufficient to draw away all the floating dust from the barrels.

A considerable space on this floor is reserved for molding, to be used in emergencies, or when the rush of business exceeds the capacity of the regular molding space on the fifth floor.

Foundry No. 2.

Foundry No. 2 is chiefly remarkable for its size. The building, which is one story with truss roof, is 160 x 1400 feet, but the north 400 feet of its length is held in reserve for future requirements of the business, being used at present as a wheel shop. The rattling, chipping, sorting and core rooms are located at the south end. There are four cupolas, two of which are held in reserve. The two in use are run on alternate days, on the continuous melting system. The continuous molding system of No. 1 foundry is not found necessary here, but Pridmore machines are used on all the work, which consists of light castings, many of which are so small that ten are molded in a flask. The floor space is extensive enough to hold an entire day's work. It is molded up during the day and poured as the molding progresses. When the molders quit in the evening another shift of men takes up the work of shaking out, which is carried on at night.

About 1000 men are employed regularly in the two foundries on gray iron castings. The company's malleable castings are made elsewhere.

Growth of Foundry.

The foundry system of the McCormick Harvesting Machine Company is the result of 15 years of experimental work and development. A molders' strike in the spring of 1886, which formed an important feature of the labor difficulties that affected nearly all industries in Chicago in that year, led to the installation of a very complete pressure system of molding at these works. This system comprised every device then known to the art for saving labor in foundry work, and it was operated for two years under the most careful supervision. It reduced the cost of making castings, and made the company independent of labor difficulties; but it was found that the expense for repairs for the costly and complicated machinery was very great, and the percentage of defective castings was heavy. As foreman of the pattern department, Mr. Pridmore, then the chief inventor of the company, became deeply interested in the problems involved in the operation of the pressure system. The result was his invention of the simple molding or pattern drawing machine, which has been used exclusively in these foundries ever since. This machine, as is well known, consists of a simple stand or frame with a parting board at the top, a metal pattern attached to the machine, and cranks and pitman connections for drawing the pattern through the parting board after the mold has been filled and rammed by hand, the pattern being drawn by a firm, steady motion, without rapping or vibration. This method of molding has been found to be peculiarly adapted to making harvesting machine castings, which must be absolute duplicates. The enormous volume of business of the harvester manufacturers, and the necessity for economy in manufacture, make it necessary that all parts should go together without fitting or tinkering, and castings sent out as repairs by the millions must fit accurately in machines sold 10, 20 or even 30 years ago. This system has proved eminently satisfactory in meeting these requirements.

The enormous growth of this business has been such as to tax the ability of the most progressive factory management. In a power house that stands in the shadow of foundry No. 1 is preserved an interesting relic of former days—an engine of 350 horse-power, installed in 1872, which for a number of years supplied all the power for the reaper works. To-day the works require some 12,000 horse-power, which is furnished by seven power plants, in several of which, erected or refitted in recent years, are found modern chain grates, with automatic machinery for handling the coal and ashes. This expansion has resulted both from the growth of the output and from the increasing use of special machinery or "machines that make machines." An output of 500 reapers in 1847, made chiefly of wood, has grown to sales of 300,000 machines annually, in which wood has been replaced almost entirely by iron and steel. About 100 sizes and styles of harvesting machines are now manufactured, adapted to the needs of all the grain and grass growing countries of the world. As an illustration of the export trade of the company, the fact may be cited that last year a solid cargo of 6000 tons of McCormick machines was cleared from Philadelphia for two Black Sea ports. This single shipment was larger than the entire output of any European manufacturer of harvesting machines, yet it represented only a fraction of this company's sales in one European country.

The benefits which the world derives from the use of iron and steel in agriculture in the form of harvesting machines are immeasurable. A hundred years ago practically all our labor was absorbed in agriculture. The wooden plow, the sickle, the scythe and the hoe, and other crude hand implements then in use, were so inefficient that our production of wheat was insufficient to supply our population with bread, amounting, as late as 1850, to only 4.33 bushels per capita; and the little that we exported was chiefly shipped from the slave States. With harvesting machines, our production of wheat per capita more than doubled, affording an enormous surplus for exportation. Since 1830, Mulhall says, the world's production of wheat has increased three-fold. The workingman now receives four times the value, measured in wheat, that his wages would then command; while the farmer, who then had little or no surplus to sell, now receives a large cash income from his surplus crops. The curse of Adam has been lifted from the brow of agriculture. The farmer, who for countless centuries was a slave or a peasant, toiling wearily with his hands from sun to sun, is now a business man, who rides on a comfortable spring seat, directing the movements of a machine of iron and steel that performs the labor of 20 men.

The Franklin Park Foundry.—Forster, Waterbury & Co., Franklin Park, Ill., are making important additions to their works. They have confined their attention to malleable castings, but will hereafter make gray iron castings also, having just completed a gray iron foundry which was started last week. The dimensions of this foundry are 75 x 196 feet. An addition, 75 x 196 feet is being made to their malleable foundry, and another furnace will be installed. This will be in operation within 30 days, and will double their output of malleable castings. They have also just completed two machine shops, each 40 x 96 feet. One of these will be used exclusively for the manufacture of detachable link belt chains, while the other is designed for the manufacture of wagon skells. They will make a specialty of malleable skells having a gray cast iron box, which it is claimed will insure indestructibility. The firm, although new in the foundry business, have built up a large trade which is compelling these improvements.

Breaking a Record.—Rogers, Brown & Co., the well-known pig iron merchants, who have offices in the leading cities, have issued a folder in which they give some interesting particulars showing how they have this year been breaking their record in sales of pig iron and other

materials. They had something of a record to break, for the boom of 1890 is not far in the past. In the four months, from January 1 to May 1, they sold an average of 5724 tons of pig iron, and 2194 tons of other material for every business day, making a total of 7918 tons. The other material was mainly foundry and furnace coke. They observe that this record is worthy of note as one of the signs of the great revival in business.

The Charlestown Navy Yard.

BOSTON, MASS., May 25, 1901.—P. T. McCaffrey of Utica, N. Y., has been awarded the contract for building the new power house for the Department of Construction and Repair at the Charlestown Navy Yard. The contract price is \$42,000. The new power house will measure 95 x 110 feet. It will form one end of a large ship fitters' shop, which will be built later, and will form part of a modern shipbuilding plant, for which \$450,000 is available. The power station is to be located very near the exact center of the yard. The foundations for the house and engines are in place, and the steel chimney stack, 150 feet high, has been set up. In this engine house will be generated the power for running the machinery in all the big shops of Department of Construction and Repair. Four 350 horse-power Babcock & Wilcox boilers are already in place. The pneumatic plant includes two air compressors, each with a capacity of 500 feet, one hydraulic accumulator of 1000 pounds' pressure, condensers, pumps and feed water heaters.

The New York Air Compressor Company have the contract for supplying the pneumatic plant for \$15,000. The Westinghouse Electric Company will furnish the electrical appliances for \$59,000. Three Westinghouse dynamos, with a capacity of 250 kw., will be installed. Mr. McCaffrey's contract calls for the completion of the work within four months.

A new smithy building will be built directly in the rear of the power house, and the combined length of the two will be 450 feet. A metal workers' shop of the same length will also be constructed. Each building will be 110 feet wide. An arch over the street will connect the smithy with the new ship fitters' building, 510 feet long. The main body of each shop building will be 60 feet high to ventilator, which will surmount the roof. There will be a one-story side wing on each side of the main building, and these wings will each be 25 feet wide and 20 feet high to the eaves. The metal workers' shop will contain the enameling, nickel plating and galvanizing plants and machinery for working copper, galvanized iron, sheet iron, tin, brass and composition. The furnaces, cupolas and casting floors will be located in this building. The wing in the ship fitters' building will be parallel to the new slip for the construction of war ships. The walls and doors will be removable, so that the entire side can be thrown open to facilitate the handling of plates and frame pieces necessary in ship construction and repairing.

Another Plate Mill for Lukens.

The Lukens Iron & Steel Company of Coatesville, Pa., have placed the greater part of the contracts for a new 116-inch plate mill, to be housed in a building 595 feet long, with an average width of 125 feet. The company are now building a large slabbing mill, which it is expected will be running in three months. The new plate mill should be ready by January 1, 1902, and then the capacity of the Lukens Iron & Steel Company will be about 400,000 tons per annum of sheared and universal plates, placing the company easily second to the Carnegie Steel Company. The demand upon the company for plates within the past few months has been entirely beyond their ability to fill, although they have been producing a greater tonnage than heretofore. The present plans are being carried out so as to be ready for a largely increased demand for plates when the ship subsidy bill is passed, which it is confidently believed it will be next winter.

The Coal Terminals of the Norfolk & Western Railroad.

The new coal pier of the Norfolk & Western Railroad at Lambert's Point, Va., a suburb of Norfolk, is now

between bents, in Fig. 2 a half plan, in Fig. 3 a longitudinal elevation, Fig. 4 shows a plan of the part of the Lambert's Point terminal plant devoted to coal, and a profile of pier No. 3.

The new pier, No. 3, is unique in many respects. Its

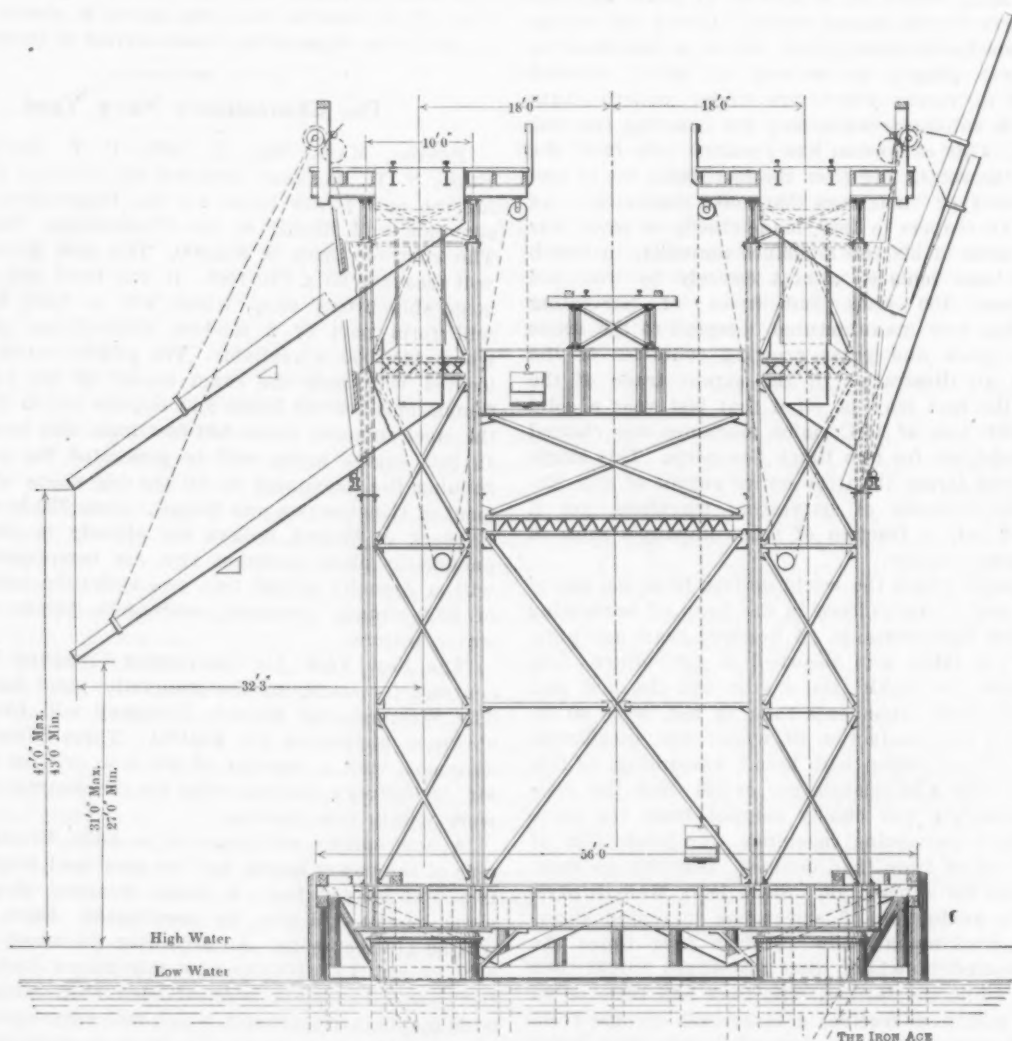


Fig. 1.—Section Between Bents.

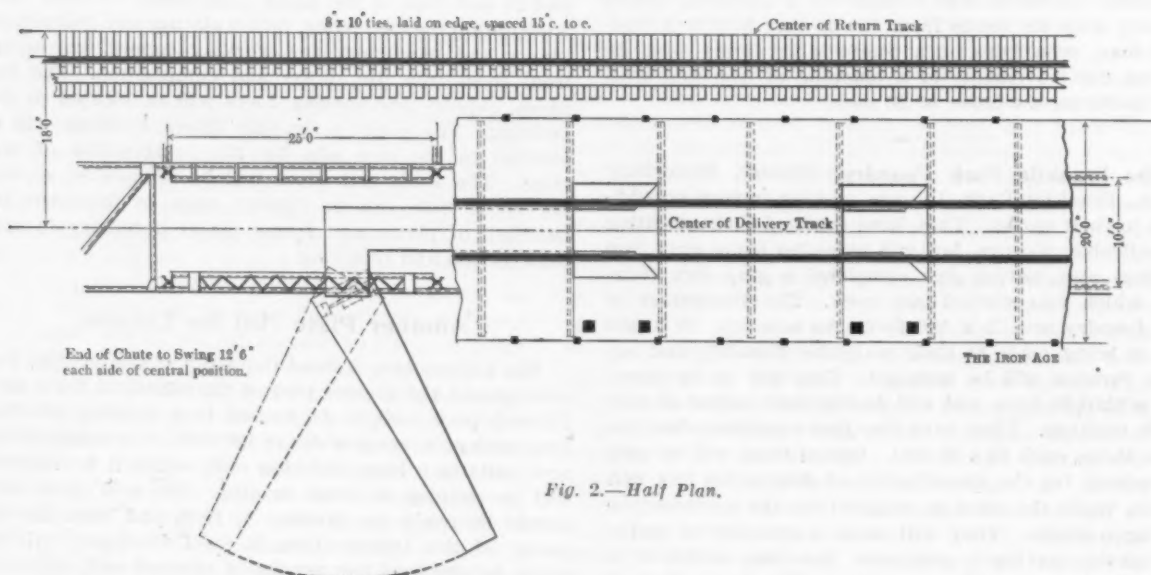


Fig. 2.—Half Plan.

THE COAL TERMINALS OF THE NORFOLK & WESTERN RAILROAD.

nearing completion and will **probably** be in use within the next 30 days.

The section over the water is built entirely of steel and is considered by the management as an example of the most advanced construction in bunkering facilities ever designed. It is known as Coal Pier No. 3. In the accompanying engravings we show in Fig. 1 a section

great height will enable it to discharge coal direct from cars into the bunker hatches of the largest steamers. Ocean tramps of 8000 to 10,000 tons are not at all unusual, and to coal them from any pier in use is slow and expensive, as the coal has to be shoveled along the chutes. From the new pier it will discharge by gravity and very little hand labor. A new feature is found in

providing a double bank of chutes to accommodate different heights of decks, as shown in Fig. 1. The new pier consists of a timber trestle 1175 feet long, and a steel trestle 850 feet long, giving a total length of pier and approaches of 2025 feet. Its average right above high water is about 70 feet. It has 55 chutes counter-balanced in the manner shown in Fig. 1. The foundations of the steel pier are steel cylinders filled with concrete. The slips on either side are dredged to an average depth of 30 feet at low water. The 100,000-pound cars of the Norfolk & Western Company will be moved up the 25 per cent. grade by cable. From the top of this grade they run by gravity to the end of the pier, switch

Japan	12,281
China	1,481
Austria	20,158
Italy	69,743
Malta	3,863
Portugal	3,979
Sweden	4,622
Africa	3,503
Azore Islands.....	17,784
Canary Islands.....	8,199
Cape Verde Islands.....	8,934
Total.....	524,553

While no great volume of exports to Europe is anticipated the shipments to foreign markets are increasing, especially to Mexico, Russia and Chile. A consider-

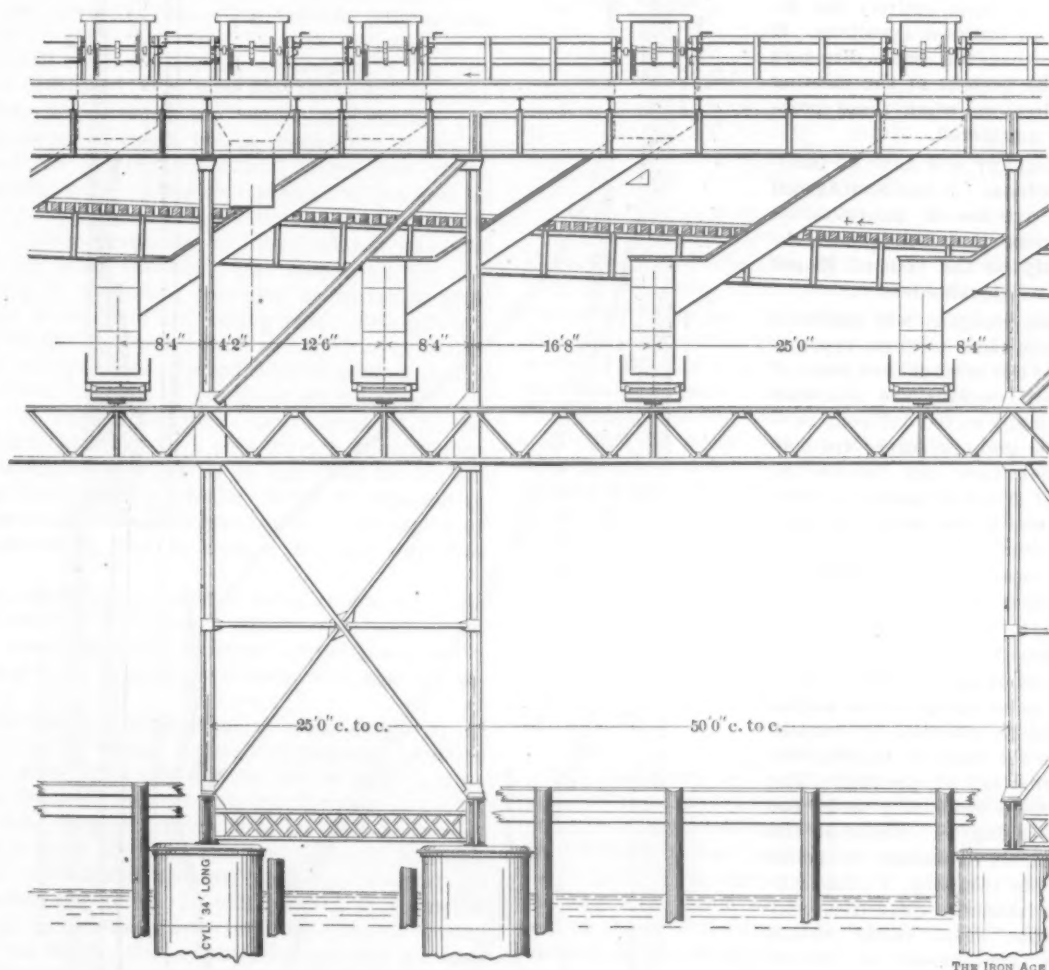


Fig. 3.—Longitudinal Elevation of Pier 3.

THE COAL TERMINALS OF THE NORFOLK & WESTERN RAILROAD.

back when empty on the return track and run by gravity to the Lambert's Point yard.

It has been generally supposed that the building of this great pier was induced by the expectation of an important increase in the export trade. This is not the case. It was required by the fact that the steamers in general trade are so much larger than those formerly in use that they could not be coaled economically or rapidly at the existing piers.

The movement of coal to Lambert's Point amounted last year to over 2,000,000 tons, of this the export shipments were as shown in the following table, prepared for *The Iron Age* by Castin, Curran & Bullitt, general agents for Pocahontas coal:

Statement Showing Shipments of Pocahontas Coal to Foreign Ports During the Year 1900.

	Tons.
Nova Scotia.....	2,540
St. Pierre et Miquelon (French colony).....	599
French fleet (Hampton Roads).....	901
West Indies.....	144,282
Mexico	27,243
Central America.....	3,866
South America.....	97,284
Hawaiian Islands.....	1,504
Philippine Islands.....	91,787

able export to Port Arthur has also begun, under contracts which will represent a large total for the year.

The Plow Consolidation.

Judge William A. Vincent of Chicago, the promoter of the plow consolidation, has made the following statement: "I see no reason for further concealment of the fact that a consolidation of a large majority of the best plow manufacturing concerns has been made. The consolidation has been made, and the different concerns invited to join are now being operated by the old companies as the agents of the new company. The Audit Company are now at work examining the books and appraising the property of the different concerns, and as soon as this is completed and the inventories checked up the money will be paid and the negotiations completed. There is no earthly doubt that the success of the new enterprise is now assured."

According to the *Farm Implement News* of Chicago the leading manufacturers in the organization say there is no question in regard to the financing of the deal. The money is ready and will be paid over to the proper

parties the moment the details are completed. All problems relating to the organization, lines of goods to be manufactured, establishment, discontinuance or consolidation of branch houses, and other questions relating to the business organization and conduct of the new company will be decided by the Board of Directors after the organization of the company. The New York bankers who are financing the deal have the utmost confidence in the ability of the manufacturers and will leave to them entirely the decision of all business questions. It is stated that the bank directors will not be present at the meeting of the directors when these problems are considered.

The company will have no bonded indebtedness. It has been agreed that the articles of incorporation shall provide that bonds shall be issued only on the vote of 75 per cent. of the stockholders.

The new company will endeavor to introduce more uniform types in plows. At the present time some of the largest concerns are manufacturing as many as 400 different varieties. The manufacturers are confident that they can reduce the number of styles of plows to about 50 or 75, and at the same time give perfect satisfaction to every purchaser. These plans, if carried out, will necessarily result in a great saving in the cost of manufacture.

The New York bankers solicited the opinions of all manufacturers in the deal as to the probable saving that could be effected, by consolidating, in the cost of manufacture and distribution of product. The replies varied from 12½ to 20 per cent., averaging 18. Some of the manufacturers expressed the belief that the big company, buying material in immense quantities and paying spot cash, could obtain important concessions in prices. Others did not regard the possible saving in this particular as important, but stated that the cost of selling and distributing would be materially reduced.

All the manufacturers interviewed state that the new company will devote a great deal of attention to the export trade. It is expected that this branch of the business will be largely increased. Manufacturers are confident that they will so enlarge their trade in this direction that not only will all present plants be run to their full capacity, but it will be found necessary to make extensive additions to those that are best located. Special manufacturing facilities will undoubtedly be provided for the export trade.

At the Milwaukee meeting of the Amalgamated Association last week a motion was made that the Tin Plate Workers' National Protective Association be invited to join the Amalgamated Association. It was

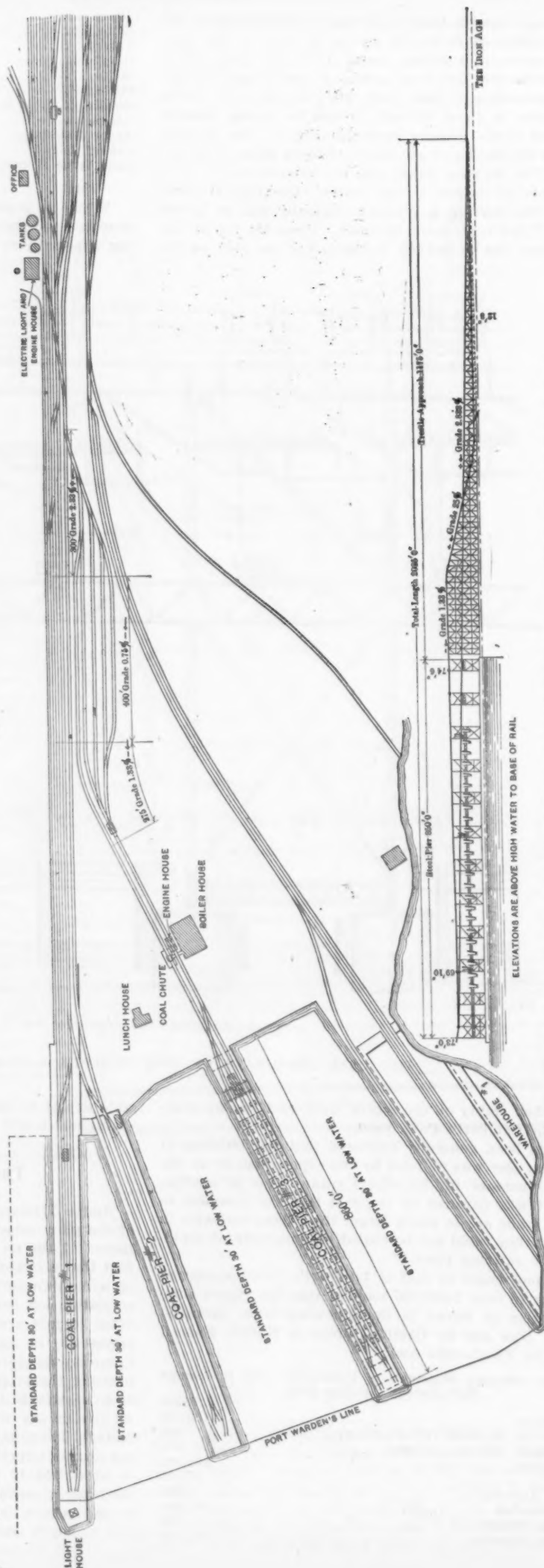


Fig. 4.—The Coal Terminals of the Norfolk & Western Railroad at Lambert's Point, Va., with Profile of Coal Pier No. 3.

THE COAL TERMINALS OF THE NORFOLK & WESTERN RAILROAD.

stated that if this could be done it would make both of these organizations much stronger. A recommendation was also made that a continuous wage scale be formulated, such as requested by the American Steel Hoop and the Republic Iron & Steel Company, and it is not improbable that this will be done. It is also likely that the basis of the puddling scale will be \$5.50 per ton on a 1-cent card, instead of \$4.75, the basis of the present scale.

The Dillon-Griswold Wire Company.

The Dillon-Griswold Wire Company, Sterling, Ill., have just completed and now have in successful operation their new rod mill. The mill previously built by the company proved defective and has been replaced by a continuous mill erected under the supervision of Michael Baackes of Cleveland. The new mill takes a 200-pound 4-inch billet. These billets are heated in a 60-foot gas heating furnace, operated by an automatic hydraulic charger and are delivered as wanted on the feed rollers of the roughing train. After four passes the bar goes to the finishing rolls, where it is reduced at a high rate of speed in 14 more passes to the required rod size and wound on an automatic reel. The reel drops the coil automatically to a moving conveyor or traveling platform which carries it to the cooling yard. The mill has a capacity of 200 tons daily, double turn. The construction of the machinery of this mill was so perfect that it started without a hitch, to the great satisfaction of all concerned. A 1600-horse-power engine operates it, the power being transmitted by a rope drive to the different parts. This engine will shortly be improved by the addition of a low pressure cylinder, which is expected to increase its capacity to 2400 horse-power. An engine of 900 horse-power is held in reserve for use whenever necessary.

The company's steam plant is being enlarged by the addition of two Cahall boilers of 2400 horse-power, which will bring the total steam capacity of the plant up to 8400 horse-power. Automatic stokers will also be installed.

The wire drawing department is being expanded by the addition of 36 blocks, which will increase its daily capacity 50 tons. Two new bakers will be built in this department for preparing the rods for drawing.

A new wire fencing factory is to be built on ground north of the main factory. The building will be three stories high, 80 feet wide and 200 feet long, substantially built of stone and brick. It will contain 11 Griswold looms, each having a capacity of 1000 rods of woven fencing in ten hours. Part of the structure will be used as a warehouse for manufactured stock. The warehouse burned last January and another near it will be rebuilt and enlarged to three-story structures. An isolated fire-proof brick building will be erected for the dipping department. These buildings will be protected with automatic sprinklers.

The bale tie department is to be revolutionized by the early installation of automatic machines, invented by a Sterling citizen, Peter Frantz. Each machine will cut the wire, straighten it and loop six ties at one movement, drop the ties in bundles of 25, place these bundles in groups of ten, tie the ends and shove them out ready for the burlap wrapping for shipment. It will take but four of these machines to do the work of 30 men operating the machines at present in use.

A 1200-light dynamo has been ordered from the General Electric Company, which will double the present lighting plant. A complete system of water supply for fire protection is also being installed. The pumps will equal in capacity those used for supplying the city. The company do not propose to suffer any serious loss by fire hereafter.

It will be seen by this description of completed and prospective improvements that the Dillon-Griswold Wire Company propose to make themselves much more important factors in the wire trade.

F. R. Phillips & Sons Company of Philadelphia have been awarded contract to furnish the United States Mint

with hardened steel rolls for rolling silver and gold in the new Mint at Philadelphia. These rolls are made by Samuel Tretheway & Co., Limited, of Pittsburgh, for whom F. R. Phillips & Sons Company are Eastern agents.

Our Production of Open Hearth Steel.

According to the American Iron and Steel Association the production of open hearth steel in the United States in 1900 was 3,402,552 gross tons, against 2,947,316 tons in 1899, an increase of 455,236 tons, or over 15 per cent. The following table shows the production of open hearth steel ingots and direct castings by States during the past four years, in gross tons.

States.—Gross tons.	1897.	1898.	1899.	1900
New England.....	51,402	47,381	57,124	74,522
New York and New Jersey	39,521	47,957	61,461	67,361
Pennsylvania	1,271,751	1,817,521	2,393,811	2,703,919
Ohio	78,357	79,886	117,458	130,191
Illinois	120,609	183,103	246,183	285,551
Other States.....	47,031	54,444	71,279	141,008

Totals.....1,608,671 2,230,292 2,947,316 3,402,552

The open hearth steel made in 1900 was produced by 92 works in 17 States—Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Kentucky, Tennessee, Alabama, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota and Missouri. Only 76 works and 14 States made open hearth steel in 1899; the new States to enter the list in 1900 being Delaware, Kentucky and Tennessee.

In 1899 the production of open hearth steel by the basic process amounted to 2,080,428 tons and by the acid process to 866,890 tons. Of the total production in 1900 2,547,023 tons were made by the basic process and 855,529 tons were made by the acid process, as follows:

States.—Gross tons.	Basic open hearth steel.	Acid open hearth steel.	Total.
New England.....	28,550	45,972	74,522
New York and New Jersey.	32,129	35,232	67,361
Pennsylvania	2,063,077	640,842	2,703,919
Ohio	76,615	53,576	130,191
Illinois	244,935	40,616	285,551
Other States.....	101,717	39,291	141,008

Totals.....2,547,023 855,529 3,402,552

The total production of open hearth direct steel castings in 1900, included above, amounted to 179,326 gross tons, of which 41,094 tons were made by the basic process and 138,232 tons were made by the acid process. In 1899 the production amounted to 169,729 tons, of which 39,689 tons were made by the basic process and 130,040 tons by the acid process. The following table gives the production of open hearth steel castings by the acid and basic processes in 1900, by States:

States.—Gross tons.	Acid castings.	Basic castings.	Total.
Massachusetts, Connecticut, New York and New Jersey	21,883	.....	21,883
Pennsylvania	76,629	3,752	80,381
Other States.....	39,720	37,342	77,062

Totals.....138,232 41,094 179,326

In 1900 our open hearth production probably exceeded that of Great Britain, which amounted to 3,030,251 tons in 1899. Great Britain's production in 1900 has not yet been published.

The Hicks Locomotive and Car Works.—The F. M. Hicks Car Works, Chicago Heights, Ill., are about to commence the construction of a new plant. This will consist of a locomotive erecting shop, 150 x 170 feet; a repair shop, 80 x 150 feet; a finishing department, 115 x 230 feet; a machine shop, 70 x 225 feet, and an office and storeroom, 25 x 75 feet. All buildings will be of brick and stone. There will also be a forge shop and a boiler shop, which will be located in the old plant. The new plant will include rack tables, ladder tracks, 25 locomotive pits and at least 2 miles of railroad. The tract of land contains 12 acres, and there will be facilities for working on 25 locomotives at once. The products of the new plant will be locomotives and passenger coaches. The plant will be on the tracks of the Chicago & Eastern Illinois, Michigan Central, Elgin, Joliet & Eastern and the Chicago Terminal Transfer railroads.

American Manufactured Products in Germany.

BY FRANK H. MASON, CONSUL-GENERAL, BERLIN.

It is one of the anomalies of the present situation in Germany that notwithstanding dull and declining home and foreign markets for most products of German manufacture, there is an unusually brisk and insistent demand for certain articles of American origin. During no recent period have so many inquiries, personal and by letter, been received at this consulate from German firms and individuals who wish to be put into direct relations with American manufacturers and exporters, as during the first three months of the current year. These inquiries cover a large range of merchandise, including small machinery of many kinds, typewriters, time and cash registers, furniture and office supplies, shoes, leather, lumber and even dress goods and other textiles of wool and cotton, which, surprising as it may seem, are now produced in the United States under conditions which, it is believed here, will warrant their export to European countries.

Appreciating American Manufactures.

The significant and gratifying indication in all this is that American manufactures, as such, are becoming well known in Germany and are appreciated and approved for their quality and price. Here, as in Great Britain, an American label or trade-mark has come to be recognized as conveying a certain guarantee as to general excellence in material, workmanship and ingenious adaptation to the purpose for which the article is intended. The American machine tool, the high grade bicycle, dried and canned fruits, the \$3 shoe, the typewriter, the roll top desk and various fixtures have set high standards of excellence in those specialties and made the way more open and easy for the other manufactured products which are to follow. In respect to all these things, it is but justice to say that with few exceptions German people, especially in the cities and larger towns, have been just and discriminating in their appreciation of American wares, and do not hesitate to buy the imported article when it is better or cheaper than a similar product of native manufacture. So notoriously is this true that purchasers here are often reproached by trade papers and manufacturers' associations with a want of patriotism and a weakness for imported articles which have the merit of novelty. So marked has been the German appreciation of American machinery and tools that the imports last year included 4757 tons of machine tools of American origin, against 588 tons from Great Britain and 388 tons from France. Besides this, there was imported from the United States during the same year 20,249 tons of agricultural machinery and implements, 343 tons of electrical machines, 200 tons of steam engines, 574 tons of blowing machinery and 331 tons of pumps.

Slow to Utilize Opportunities.

But while all this is true it must be admitted that, except in a few lines, American exporters have been slow in learning the best methods of utilizing the opportunities which are offered in the German market. The makers of machine tools and shoe making machinery, typewriters and a few other specialties learned the lesson early and well, and have profited by their knowledge. But, as a class, the American manufacturer—incomparable as such—is still in the primary grade as a merchant in foreign fields. That this should be so is perhaps a natural result of his education and environment. His success at home has been so complete and satisfying, his confidence in American methods so ingrained and assured, that he finds it hard to realize that customers cannot be won in France, Germany and Russia with catalogues and price-lists in English; with measurements, weights and values stated in inches, pounds and dollars, and offering to sell his incomparably superior products for "cash at ten days sight f.o.b. New York, sight draft with bill of lading attached."

The folly of all this has been explained and written

threadbare in consular correspondence and published reports. It has been emphasized in the letters of German agents and importers, but still the confident exporter goes on in his efforts to "teach foreign purchasers American methods of business." If he ventures upon a foreign language it is almost invariably Spanish, and Germany has been strewn with Americo-Spanish catalogues and price-lists which are twice as bulky and no more comprehensible to Germans than if printed in English alone. By way of making it pleasant and easy for the foreign customer, he often incloses a United States stamped envelope, printed with his own address, to contain the returning order. If he sends a traveling salesman or agent to study the market and make personal propaganda, the chances are that the emissary will be a bright, energetic, capable young American, who knows all about the goods and how to sell them in the United States or England, but is ignorant of every language but English and helpless beyond the realm of his mother tongue. Even with these disadvantages the imperfectly equipped salesman often renders a valuable service by studying the actual needs and conditions of the foreign market, finding how it can be best reached, and, as one of them sententiously remarked, "getting the facts to convince our firm at home that Germany is not in the United States."

Trade Catalogues.

In respect to size, beauty of print and illustration the trade catalogues issued by American manufacturers are the most elaborate and beautiful as well as the most expensive in the world, but for practical purposes they are often defective in several respects, the most essential of which are too many claims to superiority and too little definite and exact information concerning the weight, dimensions and effective capacity of machinery; absence of metric weights and measurements and prices in francs, marks or other foreign equivalents; and translations, when given at all, made by persons who do not understand the goods and which are often so incorrect and imperfect as to furnish no adequate technical description of the merchandise. As a result of these defects, intending purchasers are frequently obliged to open a correspondence with the exporting manufacturer in order to obtain clear and definite information. This entails a serious waste of time and often leads to the loss of orders, which are given to manufacturers of other nationalities, who make careful and complete catalogues specially for the German market, or, what is still better, send a capable traveling salesman to exhibit samples or photographs of the goods and make direct contracts in the office of the purchaser.

For the fact remains that with all that can be done by other means it is the expert salesman—the drummer—who is the most effective nurse of new trade, either at home or abroad. The foreign firms or agents are also important adjuncts when they are trustworthy and enterprising, but there is always the possibility that they will hold back the sales of an imported article while pushing those of native production, or they may take advantage of loosely drawn patent and trade-mark laws to improve their own product at the expense of the foreign competitor. All this is but natural, and must always be taken into account by exporters who place their goods in the hands of foreign agents who are already established in a similar line of trade. Many of such houses in Germany have been enterprising and faithful and have built up an important permanent traffic in American specialties. Others have utilized the opportunities thus acquired to use the imported machine or other article as a model to improve their own products, which they have pushed into complete control of the market.

There should be, therefore, a closer acquaintance and more binding agreement between exporter and agent, and this can be acquired only by personal contact and a more careful study of the conditions and requirements of European trade, made here on the spot by competent merchants or expert salesmen. In large enterprises the sale of machinery and tools, sales of railway supplies, mining equipments, contracts for bridges, &c., our people have achieved brilliant successes because they have come abroad and done the business directly with pur-

chasers. The enormous increase of the German export trade during the past 20 years is a monument to the efficiency of the good natured, persistent, highly educated German drummer, who, with sample bag and order book, backed by subsidized steamship lines and German branch banks in foreign marts, has camped in the remotest markets of the earth until he has practically made them his own.

Errors of Exporters.

It is an ungracious though sometimes a wholesome duty to point out some of the other errors into which certain of our exporters have fallen through careless overconfidence or ignorance of foreign conditions, and to state from the standpoint of the German importer some of his grounds of complaint. The first of these charges is that American exporters are in many cases too lax and irresponsible in the fulfillment of contracts. As an example of what is meant by this the following incident will serve: In August of last year a furnace company in a Southern State sold through an agent in Germany to a steel manufacturer in the Lower Rhine region 5200 tons of pig iron, with the express stipulation that 4000 tons should be shipped so as to be landed at Rotterdam on or before November 15, and the remainder to be landed at Hamburg not later than the same date, so as to be shipped up the Elbe to Silesia before the close of navigation. There had been a dearth of pig iron in Germany during the summer and early autumn of last year and the purchaser waited impatiently for the American material. Letters and telegrams to the seller evoked no satisfactory reply. The autumn boom in steel manufacture had begun in the United States and he was taking care of his friends at home. Finally, on December 20, 200 tons arrived at Hamburg. The Elbe was then frozen so that it had to be shipped inland by rail. The remaining 1000 tons of that order and the 4000 tons for Rotterdam failed to arrive and the order was canceled. The Rhineland steel maker accepted the non-delivery because an important decline in the demand and prices of steel had meanwhile occurred in Germany and he could dispense with the American pig iron. But had this been otherwise he might have bought the whole 5000 tons in England, Germany, or anywhere, paid the market price for it and collected the difference between that and his contract from the agent who sold him the American metal and failed to deliver it according to agreement. It should be clearly understood that under German laws nonfulfillment of contract is a misdemeanor, for which the delinquent can be made to pay both actual and contingent damages.

Responsibility of German Agents.

It follows that the German agent of an American exporter, selling goods on commission and depending upon the promptness and good faith of his principal not only for the stipulated delivery, but for the quality of the merchandise, is placed by any default in an exceedingly risky and delicate situation. Being a German subject he is held subject to the laws of Germany in respect to all contracts made for fulfillment in this country. If he fails to deliver the right goods at the right time the purchaser may at his option cancel the contract or cover it at the risk and account of the commission merchant who represents the foreign seller. Against the honor and good faith of most American exporters nothing can fairly be said, but there are in several lines of business firms of easier conscience and sharper methods who do not hesitate to conduct their export trade on the ethical basis of a horse trade and who stoop to practices which are complained of by the victims to their local chambers of commerce, are reported and discussed in newspapers and furnish the enemies of American imports with just the ammunition that they crave.

Among cases of this kind which have been complained of at this consulate during the past few months have been one in which a large shipment of grease for candle making was found adulterated with 28 per cent. of water and the exporter made a stubborn fight against allowing the discount justified by such fraudulent qualities; others in which machinery has been damaged in transit by reason of frail, imperfect packing, and scores

of cases in which California prunes and other dried fruits are not graded at all, except that one layer of selected pieces representing the grade sold is laid on the top, while the remainder of the box is filled with small, discolored and wholly inferior fruit belonging to a different grade and bearing a wholly inferior price. This abuse has been so flagrant that certain associations of fruit growers in the Pacific States have been organized to grade, pack and control the quality of their aggregate products; but the reform is not yet complete, and a recent shipment of dried peaches from San Francisco has been one of the worst on record.

In no market of Europe will any trickery of this kind—any lapse whatever from absolute honesty and good faith in the fulfillment of a contract—entail such fatal consequences as in Germany, where every detail of commercial practice is strictly regulated by law, and where the purity and excellence of food products are guarded and enforced with a rigor which is all but fanatical.

Classification for Duty.

Another point that few American exporters seem to grasp is that articles made from several different materials—as wood, steel, nickel and copper—are uniformly classified for duty in Germany under the constituent material which bears the highest rate of duty. This has led to some queer and seemingly irrational decisions, as, for instance, where canned vegetables were classified as tinware because the duty rate on tin is far higher than on vegetables. When, therefore, machinery or other merchandise includes parts which are nickeled, upholstered or otherwise specially decorated, such parts should be packed separately. Letters or catalogues should state precisely not only what the article weighs, but how many cubic feet of space it occupies when packed in the smallest practicable compass for shipping, and whether the individual parts are of steel, brass, iron, wood or other material.

While it is probable that the imports of American machine tools, electrical and even agricultural machinery may show a marked decline during the current year as compared with 1900 and 1899, there is yet an unsatisfied demand for a wide range of novelties and special inventions in which American ingenuity and adroitness in manufacture have produced something strikingly superior to what is known or used in this country.

As an indication of what is meant may be cited the recent inquiry of a leading importing firm at Berlin which solicits information and propositions from makers of the most modern and highly improved centrifugal machinery for chemical and laundry purposes, filling machines for charging small paper bags with groceries and medical preparations, filling bottles with salts, &c., and machinery for making pastilles and lozenges of all kinds. It is well known that in these and many other specialties, though not in all, American machinery is unequaled; but there is a lack of means for obtaining here exact knowledge, not only of the latest improvements, but of their weight and cost. Dealers with experience, ample resources and knowledge of the German market are numerous and ready; it is the American salesman with samples and specifications who is generally lacking.

Finally, the American manufacturer who seeks to establish a market in an old and well supplied country like Germany should realize that it costs something to advertise and introduce a new article, and ought to be willing to pay part of the expense of the enterprise. This he can do by an allowance for advertising purposes, or by granting a longer credit for the goods themselves. Before giving the exclusive agency of a product to a single firm, the exporter should know with whom he is dealing; but, once satisfied on that point, absolute faith should be kept. Many an American exporter has spoiled his chance with the best German importers by sending mailed circulars and propositions broadcast, whereas the article was one which required a special representative agency for its proper introduction. Few responsible houses will undertake the introduction of a new kind of merchandise which any competing firm can obtain direct from the American exporter. In all these respects business men are very much alike the world over, and it is

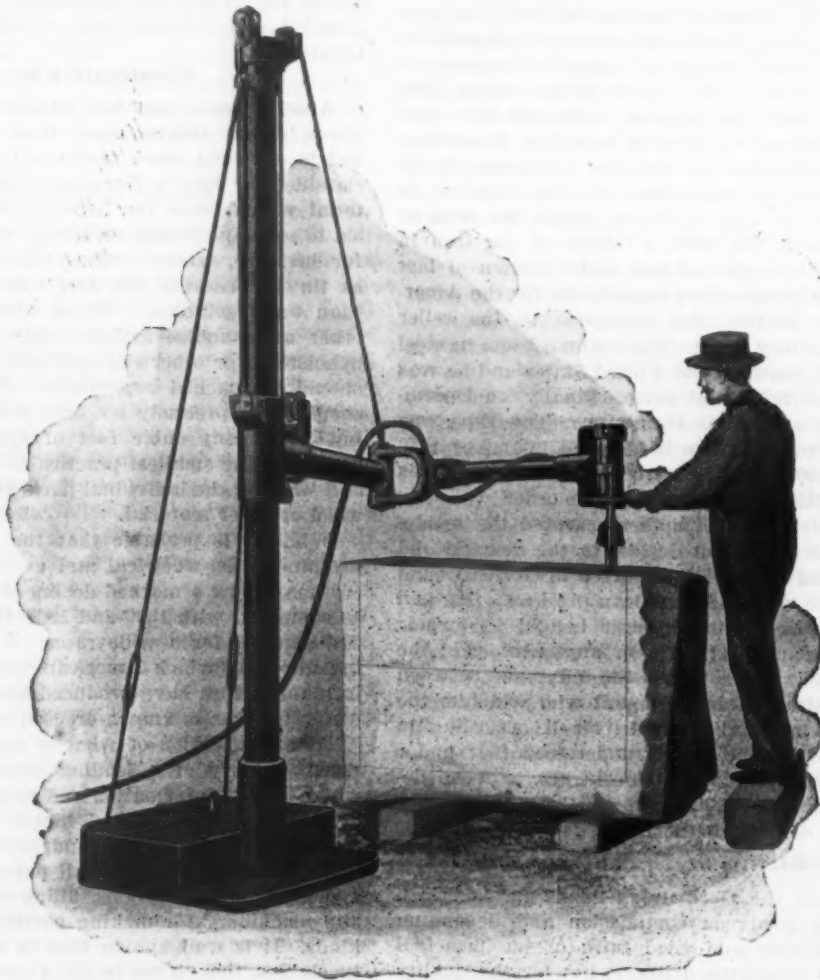
always a wholesome process for the seller to imagine himself on all questions of detail in the position of the buyer, and consider what he would or would not be willing to do if their relations were reversed.

The Dallett Stone Surfacing Machine.

Thomas H. Dallett & Co., Philadelphia, Pa., are placing on the market a new machine for rapidly truing off large stones and leaving the surface with either a bush tool finish or in a smooth condition ready for polishing. As seen in the illustration the machine consists of a large pneumatic stone tool supported by a portable frame, which allows the tool to be readily moved over the work. The frame consists of a heavy base supporting a post

the same. The shanks of the cutting tools do not require any special care in forging, it being only necessary that they fit loosely in the bushing of the tool and that the end is cut off square.

The cutting tools are of three kinds: A point chisel, Fig. 2, used for rapid roughing down; a cross chisel, as seen in the cut of the machine, used for rough finishing, consisting of a holder containing four short chisels so grouped as to form a cross—with this construction the cutting points are very easily made and easily removed from the holder to dress—and a bush chisel, Fig. 3, consisting of a holder containing blades, which does the work of the common bush hammer. This machine with 60 pounds air pressure will surface from 40 to 80 square feet per day, depending on the kind and condition of



THE DALLETT STONE SURFACING MACHINE.

on which slides a carriage, to which is fastened an elbow joint arm to the end of which the tool is clamped. The outer end of the arm contains a hinge joint, giving the tool a slight amount of free vertical movement and allowing it to adjust itself to high places on the surface of the stone. The arm is raised, lowered and held in position on the post by means of a wire rope passing over pulleys at the top of the post and around a winding drum on the top of the arm, the drum being operated by a lever and locked by a pawl and ratchet wheel. A handle is placed at the end of the arm, so that the operator can readily swing it over the work.

The pneumatic tool is a large size of the Dallett S. D. K. type and is very simple in construction, the hammer being the only moving part. The inlet to the tool is furnished with a hose nipple, air cock and grease cup, and the exhaust is furnished with a short pipe leading the air down and directing it against the center line of the cutting tool, thus blowing away the dust. The cutting tools are slipped loosely up into the lower end of the tool, its weight and that of the outer arm resting on

the stone. The arm has a reach of 8 feet from the center of the post to the center of the tool, and when in the highest position will take $7\frac{1}{2}$ feet under the tool. The total height of the machine is 10 feet 8 inches.

The Brown-Corliss Engine Company.—The Brown-Corliss Engine Company, whose incorporation was noted in these columns last week, have purchased about 1200 acres of land at Western Union Junction, near Milwaukee, Wis., upon which they intend erecting a plant and to build up a manufacturing town which will be known as Corliss. The shops will be located along the Chicago, Milwaukee & St. Paul Railway, and will consist of a machine shop, 500 x 125 feet and a foundry 400 x 120 feet. The buildings will be of steel and brick, and will be equipped with all the modern improvements, including electric cranes. When in operation employment will be given to between 400 and 500 men. Besides the manufacture and sale of steam engines and machinery, the company will furnish light, heat and power, maintain water works, &c., to supply the houses of the

workmen, which will be erected on streets now being laid out. The officers of the company are Julius Wechselberg, president; Walter S. Whiting, first vice-president and treasurer; Walter F. Brown, second vice-president and general manager. The general offices are to be located in Milwaukee.

Lake Iron Ore Matters.

DULUTH, MINN., May 25, 1901.—The United States Steel Corporation are offering but 70 cents a ton for vessel room from the head of Lake Superior to Lake Erie ports, 10 cents less than most of their season charters have been taken at. It is not improbable that a return to the 80 cent rate may come shortly, as the company will probably need more outside tonnage to move their ore. As yet vessels of the fleet are not moving as rapidly as had been hoped, and the docks are choked in some ports. At Two Harbors, for example, there are 150,000 tons of ore in dock, and mines and railroads are blocked till it is out of the way. So far the average rate of speed at which ore must be moved by the company during the season has not been approached, and June 1 will show a shortage of probably a little less than

stiff total charge. The mine has already sold 250,000 tons for 1901 delivery and is capable of producing at least 150,000 tons above that per year. Its total reserves are not known, but are supposed to be several million tons. The Messrs. Hayes will at once take up the development of their Germania and Minnewawa properties.

Capt. C. T. Roberts of Crystal Falls has gone to Baraboo, Wis., to superintend the sinking of a two-compartment shaft 400 feet deep and the opening of a mine upon an ore field made there some little time ago, and which has been under negotiation since. The ore was found by drill under a blanket of paint rock that had been worked for years and was at last exhausted. A drill was put in to see if more of the stuff might not be found, and at the depth of 400 feet ran through a nice lense of high grade ore. The formation was cut so as to show its nature, which is much similar to that of the Gogebic, it is claimed. A shaft will be sunk and the property opened at once for the benefit of Chicago consumers. Another find has been made in Southeastern Wisconsin that promises to make a stir in a short time, when any announcement of it can be published.

On the Menominee range Corrigan, McKinney & Co.

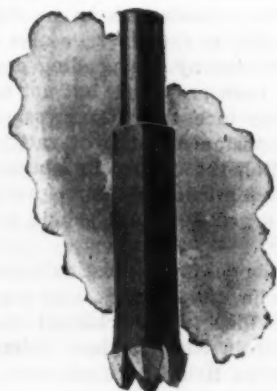


Fig. 2.

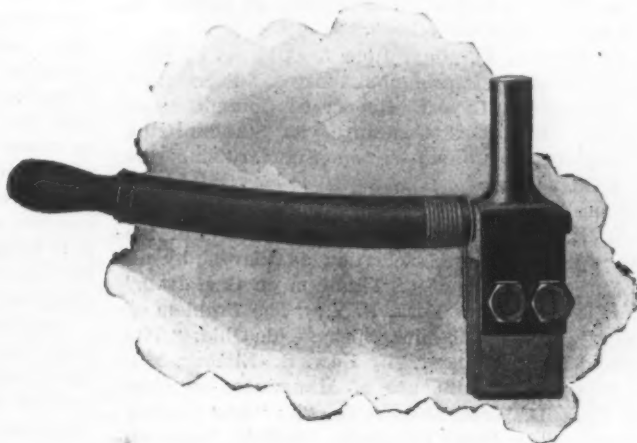


Fig. 3.

Cutting Tools Used with Machine.

THE DALLETT STONE SURFACING MACHINE.

2,000,000 gross tons from the corresponding period in 1900. This is considerable of a shortage when there has passed about 15 per cent. of the season and when it is expected to move during the year fully 5 per cent. more than then.

The ships moving are taking big loads. One of the Rockefeller ships left Duluth a few days ago with a combined load of 30,000 net tons in the steamer and three consorts pulled by her engine. This was the first time that any such load has ever been pulled by one engine, and is really quite an event in lake commerce. There were five steamships of the Rockefeller fleet built for just that class of work, but they had not been tested to capacity till now. They were heavier ships, with heavier engines and of more expensive construction than most of the lake steamships in the expectation that they would be used for pulling such vast loads. Many such cargoes will probably be carried down the lakes this year. For moving this 30,000 tons but 55 men were needed, of whom more than half were in the steamship, and the gross freights of the string were about \$20,000. This tow was expected to make the run at a sustained speed of about 8 miles an hour.

The sale of the Ashland mine, referred to last week, was on a bonus basis, figured on an additional royalty of 50 cents a ton on all Ashland ore. The mine is the fee property of the Canal Company or the Ayer Estate, I do not recollect which, and pays an original royalty that this year amounts to about 35 cents, making a very

have taken an option on the Groveland mine, which has been idle since one unfortunate attempt was made to mine it in 1891. The mine is in the Felsh Mountain district and is a low phosphorus, lean ore. When the mine was taken by the Groveland Iron Company some \$50,000 were spent in the erection of concentration works which proved useless. The ore is not refractory, and it is probably possible to treat it easily. It will be the only Felsh Mountain property to be worked. In 1898 this mine was taken by John T. Jones of Iron Mountain.

The old Hope mine, Crystal Falls, is showing a large ore body and is liable to prove a good property, together with the 40 to the north. At the Bird explorations are proving a good mine. The ore runs about 50 per cent. iron and 0.022 phosphorus and is an excellent siliceous proposition. The Bird fee belongs to Houghton County, Michigan. The Hooper exploration, adjoining, has proved a continuation of Bird deposit. The Armenia mine is being pushed so that shipments can be made this year. A big and fine shaft house is under way.

At Negaunee the Cleveland Cliffs Company have seven diamond drills working day and night, and the Oliver Company have four. All the Cleveland drills are so close together that a stone can be thrown from the central ones to the outermost, more drills in the space covered, say some that know, than were ever seen anywhere. These drills are on the Maas lands. Two of the Oliver drills are at South Jackson, one is at Lucy and the other at Barasa. Mr. Maas will commence drill

work on his new Seager options very soon. The Lake Angelina Company will drill on their Iron Mountain property at once.

Houghton County, the fee owner, has optioned lands in section 7, 39-29, Dickson County, and in section 11, 47-46, Gogebic County, to Capt. W. A. Dunn of Houghton, who will get to work at once. It has also optioned land in section 25, 47-31, Baraga County, for iron explorations. These options are on a sliding scale of royalties, from 15 to 20 cents a ton on non-Bessemer, and from 15 to 30 cents on Bessemer ores.

Discoveries of ore have been made near Saginaw, Marquette range, where Captain Ranquist of the Gogebic has been at work some time. The find is close to the old Saginaw mine, long ago abandoned.

Preliminary explorations will be carried on by the Ontario Bureau of Mines this summer on the Michipicoton range. Professor Coleman will commence work near Heien mine and work easterly along the range. He will also work along the Atikokan and Mattawin rivers, on west of Lake Superior. D. E. W.

The Foundrymen's Association.

Announcement has been made of the provisional programme of the convention of the American Foundrymen's Association schedule, to take place at Buffalo on June 4, 5 and 6. It is as follows:

Morning Session, Tuesday, June 4.—Address of Welcome and Response. President's Address. Secretary's Report. Treasurer's Report. Report of Committee on Constitution. Report of Committee on Standardizing Bureau. Report of Committee on Standardizing the Testing of Cast Iron.

Afternoon Session, Tuesday, June 4.—Address by Senator H. M. Ramp of Missouri on "The Benefits of the American Foundrymen's Association as Viewed by an Outsider." "The Influence of Titanium on Cast Iron," by Aug. J. Rosal of New York, N. Y.; "The Problem of the Molder," by J. G. Sadler, Springfield, Ohio; "The Foundry and Its Equipment," by Edw. B. Gilmour, Milwaukee, Wis.; "The Influence of Manganese on Cast Iron," by Thos. D. West, Sharpsville, Pa.; "The Control of the Foundry," by Percy Longmuir, Sheffield, England.

Tuesday, June 4, 7.30 p.m.—Visit to the Pan-American Exposition.

Wednesday, June 4, 9.30 a.m.—Visit to Niagara Falls.

Evening Session, Wednesday, June 5.—"Memorial on the Grading of Pig Iron by Analysis." Presented by Thos. D. West, on behalf of the Pittsburgh Foundrymen's Association. Discussion thereon. "Green Sand Cores," by P. R. Ramp of Aurora, Ill.; "The Economic Status of Wages," by E. H. Putnam of Moline, Ill.; "Foundry Metallurgy," by H. E. Field of Ansonia, Conn.

Morning Session, Thursday, June 6.—Address by S. Groves of Pittsburgh, Pa., on "The Engineer in the Foundry—A New Departure;" "Foundry Costs," by R. C. Cunningham of Holyoke, Mass.; "Foundry Mixtures," by Jas. A. Murphy, Elizabeth, N. J.; "The Relation of the Laboratory to the Foundry," by Percy Longmuir of Sheffield, England; "The Tropenas Converter Steel Process," by A. Tropenas of Paris, France.

Afternoon Session, Thursday, June 6.—Unfinished Business. New Business. Election of Officers. Adjournment.

The following additional papers promised by their respective authors were not completed at this writing. Should they materialize in time for the convention they will be duly presented: "Molding Steel Couplers," by J. D. McCord of Chicago, Ill.; "The Sand Blast," by F. C. Brooksbank of Philadelphia, Pa.; "The Molding Machine," by S. H. Stupakoff of Pittsburgh, Pa.; "Insuring Patterns," by F. S. Conlin of South Bethlehem, Pa.; "The Laboratory and the Foundry," by N. W. Sked of Philadelphia, Pa.; "Foundry Building," by A. Schotte of Pittsburgh, Pa.

The Niagara Hotel is to be the convention headquarters. The Convention Committee are especially particular in urging that delegates secure their headquarters in advance, as the capacity of the Buffalo hostleries is already taxed to a large extent by visitors to the exposition.

The Reciprocity Treaties.

WASHINGTON, D. C., May 28, 1901.—The authoritative announcement made during the past week that Senator Lodge of Massachusetts has been selected by the Senatorial Steering Committee to succeed the late Senator Davis of Minnesota as chairman of the Senate Committee on Foreign Relations, taken in connection with the failure of the last Congress to ratify any of the pending reciprocity treaties and the subsequent resignation of Special Commissioner Kasson, who negotiated the treaties, has occasioned a great deal of anxiety to the interests affected, and especially to those concerned in the French treaty, with the result that a suggestion has been made in high official quarters designed to bring the whole subject of reciprocity to a sharp issue when Congress reconvenes for the purpose of determining whether a basis can be secured for the negotiation of treaties that will stand a fair chance of ratification, or whether the reciprocity principle must be permanently abandoned.

It is now proposed that the President, either in the course of his annual message to Congress or in a special message, shall draw attention sharply to the fact that all efforts to make operative Section 4 of the Dingley act have failed as the result of the indifference or the unwillingness of Congress to indorse the treaties, and shall ask that this section be either repealed or so amended as to enable conventions to be drawn that Congress will be willing to ratify. It is also suggested that the interests affected by the pending conventions, or those which have been projected, but not negotiated, shall endeavor to convince their Congressional representatives of the importance either of ratifying these treaties or of amending the reciprocity statutes, unless it is proposed to abandon entirely the reciprocity policy, in which case it is urged Section 4 should be stricken from the Dingley act.

Senator Lodge was one of the most outspoken of the opponents of the reciprocity treaties, and especially of the French treaty, which it was claimed would have worked injury to certain New England interests. As chairman of the Foreign Relations Committee he would be in position not only to defeat the treaties, but probably to prevent their consideration. It has been suggested that the Finance Committee, which has been authorized to hold sessions during the Congressional recess, might be appealed to either on behalf of the pending reciprocity treaties, or with reference to the revision of Section 4 so as to make it operative, but the friends of the treaty see little hope in this direction, for the reason that Senator Aldrich, the chairman of the Finance Committee, co-operated directly with Senator Lodge in preventing action on the French treaty, insisting that the convention, after having been favorably reported from the Foreign Relations Committee, should be referred to the Finance Committee in order that it might be considered in connection with the probable reduction in the custom revenues which would be effected by its provisions.

The anxiety of the Administration and its attitude with special reference to the proposition looking to the amendment of the reciprocity statute are reflected in the following statement made by a prominent official:

"While the majority of the pending treaties have been extended so that they will not again lapse until near the close of the first session of the coming Congress, it cannot be said that the outlook for their ratification is very bright. This seems to grow out of the fact that while the majority party in Congress is pledged to the reciprocity principle, yet a sufficient number of Senators and Representatives are controlled by comparatively small interests to make it impossible to secure the necessary vote in the Senate to ratify the treaties, and sufficient strength in both Houses to promulgate their provisions by joint resolution. One important reason why Congress is not disposed to ratify promptly treaties negotiated under Section 4 of the Dingley act is due to the fact that the act was passed four years ago, and that a very large number of men who voted for it, and would now uphold it, including the distinguished

author of the bill, are not now in Congress. In other words, although the law is but four years old, its reciprocity features have become antiquated for the reason that new men representing different interests now hold the balance of power, and can with no great difficulty postpone in both houses measures requiring the concurrence of the majority or of two-thirds. This is probably more true of the House than of the Senate, as in the upper body some of the strongest opponents of the reciprocity conventions are Eastern Senators who have long been prominent in tariff councils, and who assisted in the framing of the Dingley act.

"If Congress is unwilling to ratify treaties negotiated within the limit of Section 4 of the Dingley act, it is certainly a fair proposition that it should repeal or amend that section. It will be noted that Section 3 is specific in indicating exactly what articles may be made the subject of reciprocal concessions, and the position of the Chief Executive is further reinforced by certain retaliatory provisions to be availed of in case any power imposes duties or other exactions 'upon the agricultural, manufactured, or other products of the United States, which he may deem to be reciprocally unequal and unreasonable.' As to Section 4, however, there is no limit except that no reduction greater than 20 per cent. shall be made in the Dingley rates unless the article is a natural product of the foreign country with which the treaty is negotiated, and not of the United States, in which case it may be transferred to the free list for a period of five years.

"It will be remembered that the members of the Home Market Club recently criticised the Administration very sharply on the ground that in the French treaty reductions of 5 or 10 per cent. were made in articles coming from France, similar in some respects to American products, and the statement was made that this was 'contrary to the reciprocity principle.' If this charge was true, then the provisions of Section 4 are contrary to the reciprocity principle, for they place no limitations upon the character of merchandise upon which the President may make reductions not exceeding 20 per cent., while it is expressly provided that where the goods are not the natural products of the United States they may be transferred to the free list. These considerations show in the most conspicuous manner either that the principal representatives of the protective theory in the United States are opposed to the principle of reciprocity, or that Section 4, under which the principal treaties including that with France were negotiated, does not accord with that principle.

"In view of these facts Congress should be asked to review the whole subject of reciprocity, and to define accurately the limits within which reciprocal trade agreements may be negotiated that will stand a reasonable chance of ratification when concluded. It would seem to be very timely that this work should be undertaken as soon as Congress convenes in order that conventions negotiated under the law, if amended, may be presented for ratification to the same Senators and Representatives who enacted the revised statute."

It is now expected that Congress will be asked to take up an important branch of the reciprocity question immediately after reconvening—namely, the authorization of a special trade agreement with Cuba, and this would furnish an excellent occasion for treating the whole subject of reciprocity in a comprehensive manner that would promise good results. The increasing hostility of the leading powers of Europe to the extension of American trade abroad is expected by the Administration soon to crystallize in the form of restrictive legislation, and it is, therefore, hoped that Congress will lose no time either in rendering operative the provisions of the present reciprocity laws or of devising some means for meeting the hostile demonstrations which it is anticipated the Government will soon be called upon to face if the pending reciprocal agreements are finally rejected.

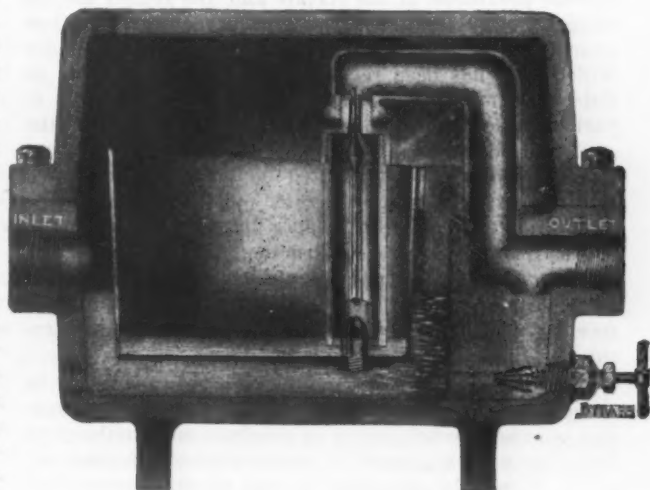
W. L. C.

F. M. Savage, superintendent of the Steel Works Club at Joliet, Ill., has issued a call for a conference of representatives of firms and corporations interested

in the social and economic advancement of employees, especially those who have institutions and activities with such intentions. The conference will be held at Detroit Hotel, Buffalo, June 24. Firms all over the country have replied favorably.

The Mo-Yo-Co Steam Traps.

An interior view of the steam trap manufactured by the Monash-Younger Company of Chicago is presented herewith. The cover of the traps can be taken off and the interior removed, if this should become necessary, without disconnecting it from the piping. The working parts are so constructed that friction is eliminated, and therefore there is no danger of sticking. The trap has an open bucket, and as the water accumulates this fills and sinks, thereby opening the valve and causing the water to discharge. It is provided with a by pass by



THE MO-YO-CO STEAM TRAP.

which it can be relieved of surplus water when steam is first turned on. The trap will work at pressures from 15 to 150 pounds.

Central Pennsylvania News.

HARRISBURG, May 27, 1901.—The increased scale of wages for puddlers in this district takes effect next Monday. It is an increase from \$3.25 to \$3.50 a ton. There is great activity at all the mills in this territory.

Frank Tenney, assistant to the president and secretary of the Pennsylvania Steel Company, and Howard Martin, the purchasing agent, will remove to Philadelphia in the autumn.

Continuous operation of all the plants in this section is assured by the great rush of orders and the placing of fall business in large volume. There has been a steady increase of orders since May 1.

The Pennsylvania Steel Company have placed an order for 1200 tons of girder rails for the Calgoorlie Tramways Company, a line controlled entirely by English capitalists. Other large orders have also been booked.

A. J. Cordier, the vice-president, and Edward W. Ball, the superintendent of the Woodhaven plant of the Lalance-Grosjean Mfg. Company, were here Saturday looking over the Harrisburg mills, which they have recently enlarged. Still further enlargement is contemplated in the erection of open hearth furnaces, for which estimates are now being received. Business at the Woodhaven plant is booming and the output of the tin mills here is consumed up as rapidly as it is turned out. A new electric light and power plant has just been installed by the company.

A manufacturer of expanded metal is reported to have purchased 2000 tons of steel sheets in England recently. The sheets are to be imported for the manufacture of expanded metal for export, under the drawback arrangements.

The Drawback System Modified.

A Decision in the United States Supreme Court.

WASHINGTON, D. C., May 28, 1901.—The decision of the United States Supreme Court in the so-called Schlitz drawback case, handed down on the 20th inst., is likely to have a very important effect on the drawback policy of the Treasury Department, especially in view of the protests which domestic manufacturers have made against a certain class of drawback allowances which the Treasury Department has recently made. As a result it is probable that the opinion of the Attorney-General will be sought by the Department to determine the exact scope of the drawback law in its application to imported finished articles which are merely attached to other articles of domestic manufacture, the combination being intended for exportation.

In pursuit of the general policy of liberalizing drawback rulings to the furthest limit consistent with the specific provisions of the statute and due regard for the integrity of the revenues, the Treasury Department has from time to time provided drawback regulations under which duty has been refunded upon a great variety of finished articles imported to be used as attachments to various American manufactures. In order to assist the American exporter of locomotives drawback of duty has been allowed on imported boilers, injectors, coupling buffers, wheels, tires, crank pins, blast pipes, &c., in addition to steel sheets, copper plates, and other material used in locomotive construction. For the benefit of exporters of railway cars, drawbacks have been granted on imported wheels, tires, ventilators, brakes, and quite recently upon the so-called Pintsch gas lighting apparatus.

Manufacturers of automobiles have been permitted to import with benefit of drawback of duty completed motors, whether electric, steam or gasoline, and similar privileges have been granted to manufacturers of other articles. It will be seen that in each of these cases, and especially with reference to boilers, injectors, motors, &c., drawback of duty has been allowed on a finished article which requires very little labor to attach it permanently to the article produced in the United States. The provision of law under which all these drawback allowances have been made is found in section 30 of the Dingley act, which reads as follows:

"Sec. 30. That where imported materials on which duties have been paid are used in the manufacture of articles manufactured or produced in the United States, there shall be allowed on the exportation of such articles a drawback equal in amount to the duties paid on the materials used, less 1 per centum of such duties; provided, that when articles exported are made in part from domestic materials the imported materials, or the parts of the articles made from such materials, shall so appear in the completed articles that the quantity or measure thereof may be ascertained; and provided further, that the drawback on any article allowed under existing law shall be continued at the rate herein provided. That the imported materials used in the manufacture or production of articles entitled to drawback of customs duties when exported shall, in all cases where drawback of duties paid on such materials is claimed, be identified, the quantity of such materials used and the amount of duties paid thereon shall be ascertained, the facts of the manufacture or production of such articles in the United States and their exportation therefrom shall be determined, and the drawback due thereon shall be paid to the manufacturer, producer, or exporter, to the agent of either, or to the person to whom such manufacturer, producer, exporter, or agent shall in writing order such drawback paid, under such regulations as the Secretary of the Treasury shall prescribe."

It will be seen that in order to bring motors, boilers, injectors and other appliances within the letter of the drawback law it has been necessary to class them as "materials," and the question now arising under the recent interpretation of this section by the Supreme Court in

the Schlitz case is whether a completed device manufactured in its entirety abroad, and requiring very little labor to attach it to the article with which it is exported, is eligible to drawback of duty. In the Schlitz case the court held that imported corks and bottles exported containing liquid were not entitled to drawback on the ground that they were finished articles upon which it is not the policy of the Government under the provisions of the Dingley act to allow drawbacks. The purpose of the drawback law, the Supreme Court held, was twofold: first to enable the American manufacturer to sell his goods in the markets of the world in competition with foreign rivals; and, second, to insure the expenditure in this country of the labor necessary to convert the imported materials into finished goods. In commenting upon a prior decision, the court in the Schlitz case said:

"The claim is by no means a strong one for the allowance of a drawback as was the Tidewater Oil Company *vs.* the United States (171 U. S., 210), in which imported shooks were used in the manufacture of boxes, subsequently exported to foreign countries. We held in that case that boxes constructed of shooks, which were imported in bundles of ends, sides, tops, and bottoms, and needed only to be put together in the United States, and in certain nailing and trimming, the whole value of which was equal to about one-tenth of the value of the boxes, were not 'wholly manufactured' in the United States within R. S., Sec. 3019, and the Treasury Regulations of 1884."

If the Treasury Department could not legally allow a drawback on shooks imported into this country, trimmed and nailed together into boxes, it is not surprising that the question should be raised as to whether, for example, a completed Pintsch gas appliance can be imported, fitted to a completed drawing room car and exported with the car with drawback of duty paid thereon. In the case of practically all the devices above mentioned the value of the imported article is much more than ten times the cost of attaching it to the domestic article, and is imported shooks were not eligible to drawback because they were not "wholly manufactured in the United States," it would certainly seem to be an open question whether boilers, injectors, ventilating apparatus, &c., imported completed are "wholly manufactured" in the United States.

Another important phase of the case to which the attention of the Department is being drawn is the interest of the American manufacturer of boilers, injectors, car wheels, &c., in competition with which the foreign devices imported free of duty now enter. It is urged on his behalf that the drawback law should be strictly construed, and it is pointed out that the Supreme Court in the Allen case, as well as more recently in the Schlitz case, laid down the principle that drawback statutes were not remedial laws, but were exceptions to the revenue laws, and therefore must be given the closest possible construction. On the other hand, the liberal rulings made by the Department are defended on the ground that but for the ability to purchase devices in the foreign market with benefit of drawback the American locomotive and car builder would be unable to compete with his foreign rival; in other words, that unless the boiler or injector, as the case might be, could be imported free of duty, the American locomotive or car would not be exported. Hence, it is argued, the American manufacturer of the boiler or injector has no interest in the transaction, as no exportation could be made if, as a condition precedent, appliances of domestic construction must be used.

Pending further consideration of this question the Treasury Department has made a ruling of importance to all manufacturers importing appliances intended to be attached to exported articles. It is held that it is not sufficient for drawback purposes that the appliances should be merely fitted to the article to be exported, but they must be securely attached so as to form a permanent part of the completed article. In the case of appliances which are not designed to be so attached it is suggested that they be permitted to remain in customs custody until the articles with which they are to be

used are ready for shipment, when they can be withdrawn for exportation without payment of duty.

W. L. C.

Canadian News.

Bounty on Refined Lead.

TORONTO, May 24, 1901.—Success has crowned the efforts of the British Columbia deputation that visited the capital to petition the Government to assist the lead refining industry. A few days ago Mr. Fielding, the Minister of Finance, introduced a bill providing a bounty to encourage the refining of lead in the country. The bounty is limited to a period of five years. The first year it is to be \$5 a ton, and it is to diminish at the rate of \$1 per ton for each subsequent year, altogether vanishing at the end of five years.

The Algoma Steel Company.

Notice is given in the last number of the Ontario *Gazette* that by letters patent the Lieutenant-Governor in Council has granted a charter incorporating certain persons as the Algoma Steel Company, Limited. The persons designated in the notice as composing the company are the following: Edward V. Douglas, manufacturer, Philadelphia, Pa.; Wm. K. Stager, accountant, of the same city; Francis H. Clergue, manufacturer, Sault Ste. Marie, Ont.; Henry C. Hamilton, barrister, of the same town. The capital stock of the company is to be \$20,000,000, divided into \$100 shares. The head office is to be at Sault Ste. Marie, Ont.

Besides the company thus created by letters patent of the Ontario Government there is the Algoma Iron & Nickel-Steel Company, just incorporated by an act of the Dominion Parliament. The same parties are at the head of it. Their capital is not limited to \$20,000,000, as in the case of the Ontario corporation, but may be increased to \$40,000,000. Presumably the object of Mr. Clergue and his associates in getting powers under a Provincial charter as well as under a Dominion act of incorporation is similar to that of the persons at the head of the nickel-steel industry of Hamilton. Besides the Dominion act incorporating them the Nickel-Steel Company of Canada, they obtained an Ontario charter constituting them the Nickel-Copper Company, thus securing additional powers.

Newfoundland Ore.

A rumor that has received quite serious attention credits the Newfoundland Government with the intention of placing an export duty on iron ore. Mr. Bond, the Premier, was asked while in Montreal if this was true. He replied that he knew nothing of it, but added that his absence for some months in London made it impossible for him to be informed as to all the details of administration at the moment. Such a duty would be felt by the iron and steel works at Sydney, as the company there draw a great part of their ore supplies from their own Newfoundland mines. Revenue would doubtless be the main motive of the Government in imposing an export duty. There might also be some retaliation in it, for in the first place the Dominion treats Newfoundland ore exactly as foreign ore, keeping the bounty on the iron made from it \$1 per ton below that made from domestic ore, and, in the second place, Newfoundland still chafes under the obstruction of Canada to the ratification of the Bond-Blaine treaty, by the Imperial Government.

Encouragement for Shipbuilding.

During the discussion of the steamship subventions in the House the Government was questioned respecting the fast Atlantic service project. Sir Richard Cartwright, Minister of Trade and Commerce, replied that up to the present the time had been found to be inopportune for entering into a contract for the building of the necessary vessels. There had been an enormous increase in the cost of the materials as compared with a few years ago. In the course of a few months he hoped the Government would be in a position to obtain some reasonable offers.

Mr. Maclean, a member of the Opposition, urged upon the Government the desirableness of establishing a steel

shipbuilding industry in the Maritime Provinces. He thought the Government should offer to a company starting such an industry the contract for building the vessels of the proposed fast Atlantic line, and give a bonus on condition that they be made in Canada.

Mr. Fielding, the Finance Minister, agreed that it was desirable that the contract for building the fast Atlantic vessels should be turned to account, if possible, for the purpose of assisting into existence a great shipbuilding industry in Canada. He said that he had been at pains to see that great shipbuilding interests were communicated with on the subject, and that they were given to understand that the Canadian Government would be glad to entertain any proposal they might put forward for undertaking the contract. He added that he had had some conversation with a man in the shipbuilding business who informed him that the providing of plates for the vessels was by no means the greatest difficulty. A vast amount of machinery would have to be provided and skilled labor found. The Minister expressed the hope that something would be accomplished in the near future.

Mr. Blair, Minister of Railways and Canals, said that a number of gentlemen were prepared to go into the building of steel ships, and there were good grounds for entertaining the hope that a thriving industry would be built up in St. John. The gentlemen he referred to, he said, are the owners of eight or ten ships, and with the experience they possessed and some encouragement he believed they would put the industry on a successful footing.

Validity of Ontario Mining Law.

The Mines act passed by the Ontario Legislature last year contains a section providing for the imposition of a mineral tax on all ores or matte of nickel and copper. The law is not in force, but may be put in operation by the Government. Strong objection has been made to it by nearly all the interests concerned. The Dominion Government was approached by opponents of the measure with a petition for its disallowance. The power vested in the Dominion Government of disallowing for any cause an act passed by a Provincial legislature must be exercised within a specified time. The time expired without action being taken. It is understood, however, that the Dominion Government was on the point of canceling the act as *ultra vires*, when the Premier of Ontario intervened, and the result was an agreement between the Government of the Province and that of the Dominion to refer the law to the courts to test its constitutionality. The case will doubtless be pronounced on first by the Judges of the High Court of Ontario, and may be appealed from them to the Supreme Court of Canada, but will hardly be carried to the Judicial Committee of the Imperial Privy Council.

The North Sydney Iron Project.

The 14-day option on the properties of the Nova Scotia Steel Company expired on May 20, and was renewed to enable certain arrangements to be completed. These were brought to a conclusion immediately, it is understood, and the bargain was consummated. According to a dispatch from North Sydney the properties are now in the hands of the purchasing syndicate.

The Nova Scotia Steel Company are evidently preparing to make extensive shipments from their Bell Island ore deposits. N. J. Coyle of Coyle Bros., railway contractors, Hazleton, Pa., left North Sydney recently to investigate the cost of raising large quantities of iron ore from the Wabana mines on Belle Island. He stated that it is probable as much as 6000 tons a day will be raised there during the next six months. Whether this is for foreign ports or for Canada is not stated. Nor is it known in whose behalf Mr. Coyle is making the investigation.

Minor Notes.

Geo. T. Marks, ex-Mayor of Port Arthur, speaking of the portion of the Atikokan iron range bonded to the American Steel & Wire Company, said: "Even if this sale does not go through there are plenty of iron properties still left on the Atikokan. A rich Boston firm have some large blocks of land there, a Duluth syndicate have

another tract, and the Messrs. Wiley of Port Arthur and myself are interested in about 3 miles of the range. Mackenzie, Mann & Co., who also have large interests there, have recently engaged a mining expert who has had experience both in Michigan and Minnesota mines to exploit their properties, so that no matter whether the Americans control that portion of the range or not it is absolutely certain that active mining will be commenced in the very near future."

Professor Hille of Port Arthur has sold to Philadelphia parties a deposit of iron pyrites near Schreiber, about 200 yards from the Canadian Pacific Railroad tracks and $\frac{1}{2}$ mile from Lake Superior. C. A. C. J.

Extent of the Texas Oil Field.

Robert T. Hill of the United States Geological Survey, who has just returned from a thorough geological investigation of the Texas oil district, has embodied the results in a report in which he says:

The importance of this oil field is far greater than at present can be described or estimated. It means not only a cheap fuel supply to the largest State in area in the Union, but, owing to its proximity to tidewater, it promises an export trade such as exists nowhere else in the world. Preparations are being made to sink hundreds of wells, and very soon the present output of 500,000 barrels a day may be quadrupled.

It is entirely within the limit of probability that oil will be found at many places throughout the coastal prairie, especially in its southern extension toward the Rio Grande and in the Northeastern State of Mexico at Tamalipas. The outcrop of the territory formations in Southwest Texas, in Wilson, Atascosa, McMullen, Duval and other counties is naturally rich in oil, and the practical oil men are risking their money in experimenting in that region. As the oil bearing territory extends east of the Mississippi into Mississippi and Alabama, it is not beyond possibility that oil may be found in these States.

It is impossible now to state exactly the extent of the oil yielding bed which supplies the Beaumont well, and this can only be determined by drilling experiments.

The area of profitable exploitation of the Beaumont oil fields is confined between the San Jacinto and the Sabine rivers, east of the Houston & West Texas Railroad and south of Oil City, Nacogdoches County. This area may be extended or restricted by future exploitation.

It is very probable that other oil fields may be discovered in the coastal plain between Beaumont and Tampico fields. Here lies a vast territory underlain by the oil bearing eocene formations which has not been exploited.

The capital stock of the Trigg Shipbuilding Company of Richmond, Va., is to be increased to \$3,000,000, and the directory increased to 11 members, the new directors being C. Stuart Patterson, director of the Pennsylvania Railroad, and William S. Ellis, secretary of the Commercial Trust Company of Philadelphia, and George W. Stevens, president of the Chesapeake & Ohio Railroad Company. The purpose of the company is to enlarge their plant to double the present capacity, so as to undertake not only more but larger work.

The greatest ore cargo ever carried and towed out of Duluth by one steamer left that port last week. It consisted of 30,600 net tons of iron ore. The Rockefeller steamship "O. M. Poe," now belonging to the United States Steel fleet, itself took a load of 7,500 tons and towed three schooners, each of about the same capacity. The steamship was built especially to pull such loads, but the owners were never ready to test the full power of the ship. The "O. M. Poe" pulled the load at a sustained speed of about 9 miles an hour.

At Pittsburgh, last week, the suit of the Lake Superior Consolidated Iron Mining Company against the Salem Iron Company, to recover \$48,000 damages for

non-acceptance of ore, was on trial. The Salem Iron Company claim the contract was made without the authority of their Board of Directors. The Commonwealth Iron Company, also an ore mining concern, have a similar suit for \$43,000 damages against the Salem Iron Company.

Pensions for Pullman Employees.

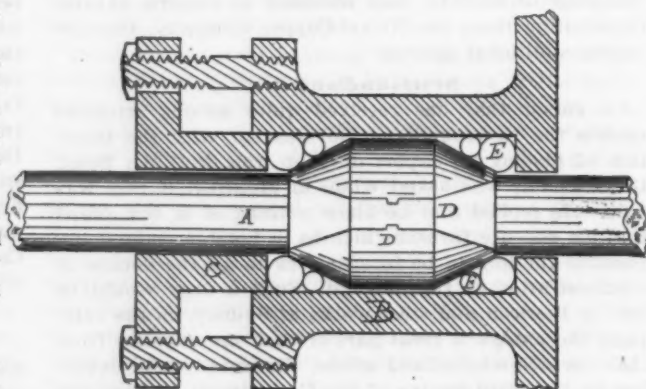
At their next meeting directors of the Pullman Palace Car Company may be asked to pass upon a plan for pensioning the 12,000 or 15,000 employees of this corporation. While no definite plan for providing for veterans connected with the company has been agreed upon, preliminary investigations regarding the number of men, their wages and the time they have served are being made.

It is not known on what basis the employees will be cared for after being retired, but it is rumored that the plan, if adopted, will be as liberal as that of the Pennsylvania, Northwestern or Illinois Central railroads.

There are between 12,000 and 15,000 employees of the Pullman Company, of whom about 7000 are negro porters in the sleeping, parlor and buffet cars in service all over the United States. The rest of the employees are conductors, office men and those in the shops of the company, which are located at Chicago, St. Louis, Detroit and Wilmington, Del. The Chicago shops are the largest and they are the only ones in which cars are built, the others being used principally as repair stations. The Wilmington plant, however, is to be greatly enlarged so as to allow building as well as repair work.

The Deeds Metallic Packing.

The Pioneer Brass Company of Indianapolis, Ind., are marketing an improved form of packing for piston rods using steam, gas, ammonia, salt brine or com-



THE DEEDS METALLIC PACKING.

pressed air. It is made in four pieces, held against the rod by means of two rings of soft packing, E E, at each end. This arrangement provides a steam joint around the outside of the metallic packing by forcing the soft packing out against the stuffing box. The soft packing does not necessarily come in contact with the rod. It is made of different mixtures to suit the various uses for which it may be required, and will wear almost indefinitely.

An annoying error was made in the description of the Elmes portable hydraulic press, which appeared in our issue of May 16. The statement was made that "two men can easily exert up to 300 pounds pressure." It should have read "tons" instead of "pounds." The mechanical reader, however, would easily observe the mistake and make the correction for himself. The press in question is built by the Chas. F. Elmes Engineering Works, Fulton and Morgan streets, Chicago.

The Dayton Strike.

The Troubles at the Works of the National Cash Register Company.

A correspondent of the New York *Sun*, in a very lengthy letter, details the troubles which led to the closing of the works of the National Cash Register Company at Dayton, Ohio, a plant famous the world over for the efforts made by its management to improve factory conditions.

The correspondent recounts how the labor union men in the shops complained that the towels supplied free of charge were washed by women not connected with any union and demanded that the work be done by a union laundry. The management simply stopped the supply of the towels. Later it was discovered that the compressed air springs on the doors of the polishing department were manufactured by a non-union shop in Connecticut. They were removed.

The correspondent continues:

The very grave questions of the towels and the springs had hardly been well disposed of before another and a somewhat more difficult problem arose. It was a question about carpenters. There were three carpenters about whose status the union could not reach a satisfactory decision. If they belonged to the group of cabinet makers they were entitled to a certain salary; if they belonged to the group of plain carpenters they were entitled to another rate of wages. The line of demarcation between these two groups, from a union standpoint, it seems is somewhat vague and uncertain. The unions themselves were unable to determine on which side of the line the three carpenters should go.

A Committee on Unclassified Carpenters was appointed and went before the general manager with the demand that he at once decide to which group the three estrays belonged. The dilemma before him was that if he assigned them to the group of the cabinet makers the straightaway carpenters would strike. If he assigned them to the group of the straightaway carpenters the cabinet makers would strike. After carefully considering the case he decided that, in the present status of work, the factory could, for the time being, dispense better with the services of the straightaway carpenters, so he assigned the three to the cabinet makers and the straightaway carpenters struck.

Questions of detail in the matter of wages now and then were brought up among the mass of petty complications. An instance of this arose after a change in the form of the machines manufactured. Instead of a metal it was decided to use a wood base for the machine. The metal polishers received a certain piece rate for each machine. The substitution of wood reduced the amount of material that had to be polished. This being the case, and after a number of experiments to reach a just basis, the foreman of the metal polishers' shop decided that the metal polishers should receive 5 cents less on each machine than they had received before. The shop committee waited upon him. He stuck to his decision.

The matter was carried to the local union. A committee from the local union waited upon the management. The management agreed to drop the question of the 5 cents difference on each machine, and to put the men on day work rates instead of piece work. The union day rate of polishers is \$2.50. The committee accepted the management's proposition in this respect with a rather important condition, and that was that instead of \$2.50 a day, the union rate paid in the other shops to polishers, the company should pay \$3.50.

The company decided that they would waive the whole question and go back to first principles, paying the men the same rates for polishing a part of a machine that heretofore they had paid for polishing a whole one. The committee took this under advisement and decided to accept the proposition.

Trouble with the Polishers.

It has been said that the complete unionization of the shop and with that the beginning of the labor

troubles date back to only about a year and a half ago. By unionization in this case is meant the formal recognition of the union by the shop management. Prior to that the company had kept what is termed an open shop. That is to say, while they did not recognize the union they did not bar union men from employment in their works. As a matter of fact, the metal polishing department was from the first practically a solid union shop. One day the foreman gave employment to a man who it turned out did not belong to the union. The shop struck work on the spot. The men would not even give the newcomer the ordinary union privilege of paying his dues then and there and going on with his work until formally admitted to the union. This the man offered to do, but his offer was refused. The shop committee insisted upon his peremptory discharge. The matter was referred to the factory committee of heads of departments; the factory committee yielded.

Then there came a great strike of the metal polishers of the Dayton Mfg. Company, who came out of the conflict decidedly ahead. The result was that there were left on the hands of the polishers' union here a number of men who were out of employment.

The foreman in the administration of the polishers' department of the register company's factory found it necessary to lay off men from time to time. A shop committee came to him and insisted that whenever he replaced one of these men so discharged he should do so with one of the strikers of the Dayton Mfg. Company who were out. There was one of these strikers in particular who made a particularly strong effort to get into the register company's employ. The shop committee insisted that the next man taken on should be this man, and that if any other was substituted in his place there would be a strike. The matter, after going through the usual channels, finally reached the factory committee and the factory committee yielded to the pressure. The striker from the Dayton Mfg. Company was put at work.

Trouble in the Foundry.

While this state of affairs was developing in the polishing department the union was getting in its work in the foundry. The foundrymen were just evenly divided—16 union and 16 non-union. The foreman, James McTaggart, was particularly objectionable to the union. He had been foreman of the Yale & Towne Company of Stamford, Conn., at the time of their strike some 11 years ago. A year and a half ago McTaggart discharged two men for cause. A committee of union men demanded their restoration. There was a three days' discussion. The company refused to take the men back.

The union sent for their international officers, who came here and day after day renewed the discussion of the restoration of these men. The result was that the company agreed for one thing to run a union foundry. They refused to take back the two discharged men into the foundry, but they agreed to the proposition to pay each of them \$15 a week for doing nothing. For three months this arrangement was carried out faithfully by both parties. Every pay day the company gave each of these two men \$15.

At the end of the three months, the pensioners in the meantime not having made the slightest effort to get employment, the company respectfully submitted that they had done about their share. There were more committees, more hearings; the international committeemen were again summoned. They came. The facts were submissively laid before them. They decided that on the whole the company probably had done all that was necessary and the pensions were discontinued, by authority of the unions.

But one great point had been gained. The foundry was unionized—the union was formally recognized by the company. The first thing the union did with the foundry after getting full control was to announce that no man employed there should earn more than \$4.50 a day. Prior to that some of the men had been earning \$5, \$6, \$6.50, \$7 and even, in one instance, \$8 a day. It was piece work and the company preferred a larger out-

put from each individual to an increase in plant and equipment.

Owing to strikes and union troubles of one sort and another there are always more or less idle union men to be provided for. The union insisted that the company take their share of this burden by increasing the number of their employees in the foundry. The result of this was that numbers of the molders who were skilled in their business finished their \$4.50 limit by noon or 1 or 2 o'clock in the afternoon. The union rules compelled them to remain at the foundry. The company on their part did not care to give them a half day's avowed idleness and the result was that the foundry became for a number of employees a sort of afternoon lounging and smoking room. This condition was intolerable. There was a new adjustment of work arranged by Foreman McTaggart, which resulted in the men's doing a full day's work for the \$4.50. In other words, with the advent of the union the sum total of gain to the employees was more work and less pay.

Then when the change in the construction of the register came and the wooden was substituted for the metal base, the demand for castings from the foundry was diminished. As a result of this Foreman McTaggart laid off three men, having no work for them to do. This was last January. The usual series of committees and conferences and hearings, references to the local union and local union committee visits to the company followed. The company supported their foreman. It refused to reinstate the three men who were suspended. The local union sent for its international committeeman, who after consultation supported the company.

Then in March, the work still being slack, two more men were laid off in the foundry, and in April still another—this last one for cause. This action brought on the usual series of committee calls and conferences. The company refused to reinstate any of the six men discharged. One of the six had put himself out of the controversy by going off and getting employment elsewhere. This reduced the number of outs to five. After a week's consideration a committee of four men, all of them employed in shops about the city that had no connection with the company, made formal demand that all these five men for whom the company had no work be restored to their places at once. This was in the latter part of April last. The management of the company met this demand with a flat refusal, explaining to the committeemen that the reason for the refusal was there was no work for the men to do. This it was that precipitated the crisis now on.

On April 29 all the molders quit work. The 16 who originally had been non-union men had been subjected to severe pressure and practically were forced into the union. A few days after this a committee from the polishing department called upon the managers of the company and demanded the restoration of the five molders. It was in the morning about 11 o'clock when it made this demand. It gave the company until 2 o'clock to decide whether to accede to it. The ultimatum was that if it did not accede the polishers would quit work.

The general manager of the company replied that he would not yield to the demand, but that he was willing to submit the matter to arbitration by a committee of five—two selected by the company, two by the polishers and one by those four. To this the polishers made no reply whatever. At 2 o'clock in the afternoon they quit their benches and were on a strike. Immediately afterward the company posted a notice to the effect that certain employees of the company having quit work it would be necessary for the entire factory to shut down indefinitely.

The 1901 census returns place the population of Australasia at 4,550,651, an increase of 740,756 since the last decennial enumeration.

The special board recently appointed by the Navy Department has reported favorably upon the introduction of wireless telegraphy into the United States Navy, and has recommended the discontinuance of the homing

pigeon service as soon as the new system is in operation. The board also suggests the establishment of experimental stations at Washington and Annapolis, and the instruction of naval cadets in the use of the wireless telegraph apparatus.

The Sheet Mill Hands' Scale.

While the base in the new sheet mill scale, adopted by the Amalgamated Association at Milwaukee is not changed, there have been some material changes recommended in the foot notes of the scale. These are as follows:

Note No. 9 is changed to read as follows: "That shearman, on jaw, crocodile or rotary shears receive one-fifth of the above price, the same to be paid by the roller. That on sheet mills using modern squaring shears the price for shearing shall be one-seventh. (The difference between one-seventh and one-fifth to be retained by the company.) Shearing to mean squaring the pack. One-sixth for all extra cuts; one-fifth for over four cuts to eight cuts, and one-fourth of a cent for each cut over eight cuts, besides the fifth. Roller to pay shearman."

Crescent Lodge No. 8, West Virginia, insisted on the change which is included in the following: "Resolved, that the words one-eighth in note 9 be changed to read one-seventh."

The delegates from Pingree Lodge, No. 17, of Ohio, are not satisfied with the scale, having been instructed on the following changes:

"That when working open hearth steel on sheet and tin mills 10 per cent. above regular prices shall be demanded on all gauges up to 24, and 20 per cent. above regular prices on all lighter gauges.

"That in view of the fact that prices on sheets have been advanced, the wages of the sheet mill men shall be advanced as follows: 15 per cent. for day hands and 10 per cent. for tonnage men."

While these changes were not incorporated in the report of the committee, they will likely be considered by the convention before the close of the session.

The following new footnotes were recommended:

No member of this association shall remain in the mill longer than three hours without working.

That no sheet mill shall start to work earlier than 4 a.m. Monday, nor work Saturday afternoon.

A New Bolt and Nut Plant.—The Youngstown Mfg. Company, recently organized at Youngstown, Ohio, to engage in the making of nuts and bolts, have elected the following directors: Thomas McDonald, Hugh B. Wick, Robert Bentley, Charles H. Booth, Rolland C. Steece, A. E. Adams and Edwin McEwen. The directors organized by electing officers as follows: Thomas McDonald, President; Hugh B. Wick, vice-president, and Edwin McEwen, secretary and treasurer. John M. Stetter, formerly superintendent of the nut and bolt works of the Republic Iron & Steel Company, Muncie, Ind., has been chosen superintendent of the new works, to be built by the above concern. Plans are being drawn by the Youngstown Mfg. Company for their new plant and work on the erection of it will be started in a short time.

The Celebrated Texas Iron Mountain, situated about 12 miles from Llano, in Texas, has been sold by R. H. Dowman of New Orleans to Kruse & Travers, Chicago. The tract contains 640 acres, and it is said that 3,000,000 to 4,000,000 tons of ore can easily be shipped each year.

The advisory board of the Blast Furnace Workers, composed of blast furnace labor in the Mahoning and Shenango valleys, have selected Youngstown, Ohio, as headquarters of their organization.

It is understood that the new sheet wage scale adopted by the Amalgamated Association at Milwaukee, Wis., does not call for any advance over the present scale, which expires on June 30.

The Iron Age

New York, Thursday, May 30, 1901.

DAVID WILLIAMS COMPANY,	- - - - -	PUBLISHERS.
CHARLES KIRCHHOFF,	- - - - -	EDITOR.
GEO. W. COPE,	- - - - -	ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS,	- - - - -	HARDWARE EDITOR.
JOHN S. KING,	- - - - -	BUSINESS MANAGER.

Conciliatory Measures Needed.

Charges of bad faith, which are the usual accompaniment of strikes, are now being made by both sides in the machinists' strike. On the one hand, some of the manufacturers claim that the men have broken the New York agreement by refusing to submit the question of wages to arbitration, and therefore no agreement whatever being now in existence the employers who belong to the National Metal Trades Association are free to open up their shops to all workmen on their own terms and to work ten hours if they choose. On the other hand, representatives of the machinists claim that they have been deceived, as they had supposed that the agreement to reduce the working day to nine hours carried with it the understanding that the ten-hour pay would be given for the shorter day, whereas they are now compelled to make a fight for this point. To raise questions of this kind and force them into the controversy means the lashing of both sides into a spirit of bitterness and excited hostility which makes the prospect of a settlement remote. It is eminently desirable that the questions in controversy should be decided upon some satisfactory basis for both parties as speedily as possible.

We cannot forget with what rejoicing the result of the New York conference last year was hailed. The agreement then made was referred to by everybody interested in labor questions as a memorable step taken toward the proper adjustment of the relations existing between employers and their employees. It was believed that the action then taken would make strikes impossible, or at least improbable, and that if either party should be guilty of any infraction of the arrangement thus made that party would be culpable indeed. Yet here we are at the end of the first year of the agreement with a large number of important machine shops lying idle and thousands of men refusing to work in them, the very condition existing which was supposed to have been carefully guarded against.

As circumstances now exist, we believe it impolitic for either party to this unfortunate labor conflict to make charges against the other. Temperate speeches should be cultivated and friendly relations should be re-established wherever discord has made its appearance. Men are now striking who have been working for a score or more of years for the firm or company against whom they have struck, and in all that time never had a grievance. Granting that their strike now is ill considered, hasty, a breach of faith, or a violation of an agreement, they will not be won to consider a reasonable settlement by threatening them with drastic treatment and the withdrawal of such concessions as have heretofore been made them peacefully. Nor is it wise for the labor leaders to accuse manufacturers of bad faith and refuse to arbitrate. If manufacturers desire local arbitration it would be far better to endeavor to secure a settlement of that character than to have a long drawn out controversy, with enormous losses not only to those immediately interested, but to many others who would

find their business seriously affected. It is desirable that as quickly as possible the manufacturers and the machinists should get together and amicably settle all differences.

This is no time for a prolonged labor struggle in such an important trade as the machinists'. Never before was the country so crowded with work in all branches of business. Manufacturers are being pressed for more rapid deliveries of all kinds of manufactured products. Workmen are more fully employed than they have been for years. The prospects favor a continuance of the good times. But a change can be quickly made if the progress of manufacturing activity should be checked to any considerable degree. Cancellations of contracts for materials, when they begin, have a baleful influence in more lines than the one in which they start. The machinery of business is as easily thrown out of adjustment and can be as sadly wrecked by labor troubles in an important trade as the machinery of a factory can be injured by a malevolent workman. If employers and employees hope for a continuance of the good times, and we presume they do, they will not permit themselves to be worked up into a state of aggravated hostility, but they will preserve their tempers and endeavor to secure a satisfactory adjustment. This is a test case for conciliation.

Promotion and Panics.

Panics, introducing commercial crises or prolonged depression of trade, are usually the results of excessive company promotion, large amounts of a country's earnings being invested where they are in whole or in part lost. In most cases the money was lost when it was paid for stock, but the loss was not recognized till the company went into the hands of a receiver. Were only past earnings invested in unsuccessful companies the results would be serious enough, but far less than they always are, for in times of prosperity, when it is easy to sell the stock of new companies, it is easy to borrow money, and not only the earnings of the past, but the hoped for earnings of the future, are invested unproductively. The result is loss and burdensome indebtedness. The debtor's inability to pay makes it difficult or impossible for his creditor to pay, the losses so spreading through the community, while men who cannot collect, and find it increasingly difficult to borrow on account of the general atmosphere of distrust and uncertainty, raise money to meet their obligations with by selling their stocks or their goods at anything they can get.

The bank failures in Australia eight years ago were due mainly to enormous speculative investments in real estate by their customers and sometimes by the banks themselves. Real estate speculation was the main cause of the panic of 1837 in this country, and a leading cause of the panic of 1873, both in this country and in Europe, and of the bad business in the West about ten years ago. Unprofitable railroads probably had more than any other one cause to do with the crises and depressions of the nineteenth century on both sides of the ocean.

Germany has had a period of unprecedented activity in the formation of stock companies, and while there has been no panic, a very decided depression in most of the industries does exist. During the past year Russia has had a severe shrinkage in the value of property, particularly in the securities of corporations. This immediately followed a period of extreme activity in the organization of stock companies, and the speculation in stocks. Japan has been going through a period of extreme business depression, which has lately resulted in

the suspension of a considerable number of minor banks, the succession of failures being stopped by the extension of aid by the stronger institutions. Since the Chinese war there has been great speculation and extensive floating of joint stock companies in Japan.

In the United States during the last few years the construction of railroads has been very moderate. Within three years there has been an immense floating of new stocks, but they have been in great measure the stocks of well established and highly profitable industries. The railroads, and generally the manufacturing concerns, have been making money, the wealth of the country is so great that what losses have occurred in investment and speculation seem to have done no appreciable harm. The financial institutions are believed to have been careful in the extension of loans and they are increasingly ready to co-operate to sustain public credit.

The Progress in Open Hearth Steel Manufacture.

The statistics of the production of open hearth steel just published by the American Iron and Steel Association give numerical expression to a development with which every one in the iron industry is familiar. The increase in the output has been astonishing, having doubled since 1897. It may be interesting to place side by side the production of Bessemer steel and open hearth ingots from 1893 to 1900, both inclusive:

Production of Steel Ingots.—Gross Tons.

Year.	Bessemer steel.	Open hearth steel.	Total.
1893.....	3,215,686	737,890	3,953,576
1894.....	3,571,313	784,936	4,356,249
1895.....	4,909,128	1,137,182	6,046,310
1896.....	3,918,906	1,298,700	5,218,606
1897.....	5,475,315	1,608,671	7,083,986
1898.....	6,609,017	2,230,292	8,839,309
1899.....	7,586,354	2,947,316	10,533,670
1900.....	6,684,770	3,402,552	10,087,322

The striking fact brought out by this table is that the progress of the open hearth furnace has been steady and uninterrupted, while the enormous fluctuations in the requirements have been borne by the maker of Bessemer steel.

The most significant change is that of the past year, when the make of Bessemer steel ingots fell off 900,000 tons, while the production of open hearth steel actually increased 450,000 tons.

When the fact is considered that there was almost feverish building of new open hearth furnaces last year, that a number of new plants are now actually under construction, and that additional projects are ripe for the builder, then it must be clear that further invasions of the old field of the Bessemer converter are imminent. To-day there is only one really large Bessemer plant under construction against a large number of open hearth works.

The prediction has been made frequently lately, and it has come from high quarters, that the days of Bessemer steel are numbered, as contrasted with the open hearth metal, particularly since modern processes and methods are cutting down the cost of production of the latter very rapidly.

Still, as the gap in the price of non-Bessemer and Bessemer ores closes up, and as the demand for smelting scrap grows more urgent, the basic open hearth furnace may not make so good a showing as the acid Bessemer converter.

For years the works of the National Cash Register Company, at Dayton, Ohio, have been the admiration of the country through its appliances and methods for im-

proving the condition of factory labor. While no pretense whatever has ever been made by the management that any other than strictly selfish aims have been pursued, the hope has been cherished by a great many people that success would crown the efforts made. Many have felt sure that relations would be established between the employees and the employers which would encourage developments in the same direction in other quarters. The story of the chicanery of union men in the employ of the National Cash Register Company, which we gather from an account in the New York Sun, is not pleasant reading, and, while apparently only a small minority of the employees have been responsible for the happenings recited, the effect is none the less decidedly discouraging.

OBITUARY.

JOB H. JACKSON.

Job H. Jackson, president of the Jackson & Sharp Company, Wilmington, Del., died at his home in that city on May 23, after a protracted illness, from Bright's disease. He was born in Chester County, Pa., in 1833 and went to Wilmington when 14 years of age. Mr. Jackson began life in the humblest circumstances and worked up to the position of one of the leading citizens of his State. He was one of the founders of the Jackson & Sharp Company, who started business 38 years ago, and helped to build it up to become one of the leading car manufacturing concerns of the country. Just prior to his death the company passed into the possession of the American Car & Foundry Company.

GILBERT M. M'CAULEY.

In the death of Gilbert M. McCauley of Harrisburg, Pa., the iron and steel trade and community at large lose a man of force and ability. Mr. McCauley was born near Ashland, Ohio, January 31, 1842, and enlisted at the outbreak of the war in President McKinley's regiment. Later he came to Harrisburg as a clerk in the Quartermaster's Department under Captain Reichenbach. At the close of the war he was tendered a position in the First National Bank. In 1875 Mr. McCauley became identified with the Central Iron Works, at Herr street, and gradually rose until he became general manager and treasurer of the combined Bailey and McCormick interests in South Harrisburg in the merger known as the Central Iron & Steel Company. He was also at one time president of the Harrisburg Foundry & Machine Works. Mr. McCauley was always at the front in every movement for the betterment of Harrisburg. He was for one term president of the Board of Trade and served as chairman of the Committee on Manufactures for several years. He was also a director of the Harrisburg Trust Company.

NOTES.

REUBEN R. FINCH, a pioneer stove manufacturer and foundryman of Peekskill, N. Y., died on May 15 at his home in that town, aged 72 years.

CHARLES H. ASHBURNER, former president of the Abbott Iron Company, died on May 22 at his home in Baltimore, Md., from Bright's disease, at the age of 74 years. He was a native of Philadelphia, but went to Baltimore in 1850 and entered the employ of the Ashland Iron Company. Ten years afterward he became a member of the firm of Brooks Brothers & Co., iron merchants, who were succeeded by the firm of Charles H. Ashburner & Co. At the close of the Civil War he accepted a position with the firm of Horace Abbott & Son, afterward the Abbott Iron Company, and rose to the presidency. Later he became treasurer of the Pottstown Iron Company, where he remained until his retirement three years ago.

G. W. BARTON of the hardware firm of G. W. Barton & Sons, Tallapoosa, Ga., died at his home of paralysis May 14, aged 65 years. He was born in New Haven, Vt., and lived there until about nine years ago, when the family moved to Tallapoosa.

THE MACHINISTS' STRIKE.

Reports from all Sections of the Country.

Developments which have come during the week show that the strike of the machinists has hit the country in spots. In the principal New England towns there is a marked difference in the aspect. For instance, Worcester remains practically unaffected, as do other cities in the immediate vicinity. Reference to our correspondence, printed in the following pages, will show that these towns know of no strike except what they hear. Reaching Hartford and Bridgeport we see that the manufacturers have united as one and will insist upon the conduct of their business upon business lines. In these two places there will be no recognition whatever of the elegantly dressed walking delegate, who has power to close their establishment according to the dictates of his home office. The manufacturers here claim the right of dealing with their employees as an integral unit of all the employees, and absolutely independent of any outside interference. They are willing to deal man to man or committee to committee, but not through any concern which may be so-called "Central" and which knows nothing whatever of local conditions.

In Providence a test case is presented. Our report shows that a trial is being made of two concerns. In this instance no other manufacturing establishment has been affected. The machinists appear willing to leave the outcome to this test.

New York and vicinity are considered elsewhere.

Philadelphia, Wilmington and Baltimore are in a sort of half and half condition, as is the status of affairs in New England. The manufacturers have not united, some of them have granted the demands, while others are still holding out and their shops are more or less crippled. In the West practically the same condition exists except in Milwaukee, where the employer stands as a unit.

Judging the whole thing from a ten days' old standpoint it would appear that the machinists' organization had not the strength necessary to carry on a strike of national magnitude. It has further shown a unity of movement among manufacturers to unite for their own protection. A significant peculiarity of the whole situation rests in the fact the employer, as an individual, and as a whole, is willing to consult with his own men, but is not willing to be controlled or influenced by any outside considerations. The thing appears to simmer down to this: Shall a corporation conduct their business according to local conditions, or shall they bow to the control of circumstances entirely foreign to their own environment?

The Situation in Boston.

BOSTON, May 25.—On Monday morning 1520 machinists in this city refused to go to work, under the direction of the International Association of Machinists. During the week many of the strikers have returned to their accustomed places, however.

Many of the smaller firms expressed a willingness to accede to the union's terms, provided the larger firms would do the same. They did not want to handicap themselves by exceeding the terms that prevailed in the trade. The machinists were well organized, but their Arbitration committees could find no responsible representative of the manufacturers with whom they could confer; consequently they had to treat with each firm individually. The union desired to concentrate their efforts on the large firms.

In fact, arbitration was proposed here before the strike began. The State Board of Arbitration offered its services to the Boston union of machinists, but as the latter was acting under the advice of the Interna-

tional Association it could not at that time accept the offer. As the strike is not local there are many difficulties in the way of arbitration, but the State Board will take advantage of every opportunity to bring about a settlement.

At its Sunday meeting the local Central Labor Union unanimously voted to indorse the strike. The local railroad machinists have not struck and quite a number of employees of the smaller firms did not come out, owing to the firms agreeing to grant the demands in case the George F. Blake Company in East Cambridge and a few other leading concerns take that action. As the Blake Company are members of the pump combine, and its part in the strike is managed in New York, the managers of the East Cambridge establishment cannot act independently.

Among those in this State who made concessions to their employees and thereby avoided a strike were the Union Shoe Machinery Company, who reduced the working time in the Winchester, Boston and Beverly factories to 55 hours per week with pay for 57 hours; John Robinson of Hyde Park, who has adopted a schedule of 54 hours per week with pay for 57 hours; the Bausch Machine Tool Company of Springfield, who run 55 hours per week, closing Saturday afternoons; J. Stevens Arms & Tool Company of Chicopee, who work their River plant men 54 hours per week and will work all their shops nine hours per day after October 1, and the Reece Buttonhole Machine Company of this city, who have conceded the shorter day. Upward of 60 firms in this city and vicinity have adopted a working day of nine hours or less. These include the Lombard Water Wheel Governor Works, the Diamond Safe Company, Couch & Seeley and the Standard Rivet Company.

Between 600 and 800 machinists were discharged by the George F. Blake Mfg. Company of East Cambridge. They were given to understand that if they desired work in the shop they must apply for it. The American Tool & Machine Company, with shops in Boston and Hyde Park, began running their shops nine hours per day on Monday, with no increase in wages, and the men remained at work although many were members of the union. The men employed by Rawson & Morrison and the Barbour-Stockwell Company of Cambridge were satisfied with the concessions made by their employers and did not go out.

Some 550 men, employed in nine shops in Springfield, went out Monday morning. Thirty-eight men employed in the Lowerville plant of the American Bicycle Company in Westfield also struck and were discharged. There were no machinists' strikes in Worcester, Lawrence, Lowell and Lynn. At Springfield the strike affected the Springfield Drop Forging Company, the Moore Drop Forging Company, the Cheney-Bigelow Wire Works and the Springfield Elevator & Pump Company. The machinists of the Waltham Watch Tool Company also struck.

On May 18 Mellan & Bray, proprietors of the Tubular Rivet & Steel Mfg. Company of Quincy, Mass., gave notice that thereafter nine hours would constitute a day's work in their shops and that employees would be given Saturday half holidays between May and November. These reductions were without loss of pay.

From the Ashton Valve Company's place 53 men have gone out; Woven Hose Company, 25 men; John T. Golding Company, 75 men, and Goodyear Shoe Machinery Company, 400 men.

BOSTON, MASS., May 27, 1901.—The 500 machinists who left the employ of George Lawley & Son Corporation returned to work to-day under unqualified union

conditions. The officials of the corporation and the Boston Lodge of Machinists signed the agreement yesterday. There are now only eight firms holding out.

Two hundred and fifty iron workers employed by the Atlantic Works Corporation in East Boston propose to demand higher wages. The working day of nine hours has been conceded by all the firms in the city. The present fight is over the wage increase of 12½ per cent., against which the larger firms are holding out. The union says it will turn its attention to them as soon as the smaller difficulties have been arranged.

Yesterday there was a strike in the Goodyear shop of the United Shoe Machine Company. The union officials have advised the workers in the company's Winchester and Beverly shops not to strike until instructed. The men in the Winchester shop work 55 hours for 58 hours' pay, this schedule having gone into effect on May 1. The 400 machinists in the Goodyear shop, which is situated in this city, rejected the company's proposal to make nine hours the working day with pay for 57 hours per week.

The following Boston firms have acceded to the union terms since Monday: J. H. Paine & Son, George T. McLaughlin, the Empire Laundry Machine Company, the Sturtevant Mill Machinery Company, the Blanchard Machine Company, the Bussell Trimmer Company, C. S. Fifield, Boston Electric Company, Boston Electric Light Company, H. H. Cummings, Reese Buttonhole Machine Company, Lombard Water Wheel Governor Company, Reynolds & Co., Whittier & Co., Dill Mfg. Company, Parker Mfg. Company, Peerless Eyelet Machine Company, Frank Ridlon, Library Bureau, J. H. Long, Tarbett Phenester Company, W. W. Fields, Philadelphia & Boston Brick Company, A. J. Wilkinson, Dodge Machine Screw Company, Perkins Machine Company, Acme Cutter and Press Company, J. B. Dalrymple, John A. Wleck, Roberts Iron Works, Poland Laundry Machine Company, Trimont Wrench Company, Consolidated Fastener Company, Ball Bearing Company and Fitzhenry Machine Company. At other points there are Tubular Steel & Rivet Company of Wollaston, Putnam Nail Company of Neponset, Barbour-Stockwell Company of Cambridgeport, New England Gas & Coke Company of Everett, American Roller Bearing Company of South Boston, Lawson & Morrison of Cambridge and the Beverly Machine Company of Beverly.

The following is a paragraph in the new agreement between employer and employee: "In case of a grievance arising the above firm agree to receive a committee of their machinists, to investigate and, if possible, to adjust the same. If no adjustment is reached the case shall be referred to the above company and the representatives of the International Association of Machinists. If no satisfactory settlement can then be agreed upon the whole subject matter shall be submitted to a board of arbitration consisting of five persons, two to be selected by the above company, two by the above lodge of the International Association of Machinists, and the four to choose a fifth arbitrator, and the decision reached by this board is to be binding on both parties to this agreement."

The Fitchburg Steam Engine Company of Fitchburg, Mass., have posted notices of a new time schedule to take effect June 1, under which 56¼ hours will constitute a week's work, with pay for 60 hours. The 90 employees of the company have made no demands for shorter hours or increased wages.

About 200 employees of the American Watch Tool Company of Waltham, Mass., struck Tuesday because the company refused to grant them a working day of nine hours with no reduction of pay.

BOSTON, MASS., May 28.—Monday brought an enlargement of the strike in some directions and a favorable turn in affairs for the machinists in a number of shops. Among the big concerns where the men went out were the Atlantic Works of East Boston. Upward of 100 men, according to the machinists' committee, are out from this establishment. The Blake Pump Company's strike is the biggest of all, and the situation is to some extent dependent in several smaller places upon the

outcome of the strike at the Blake and Atlantic Works and the Goodyear Shoe Machinery Company's plant.

The Peerless Machine Company's machinists, South Boston, 26 in number, have reached an agreement with their employers, being scheduled to return May 29. At the shops of the American Steam Gauge Company, Jamaica Plain, and the Waldron plant, on Kneeland street, in the city, union terms were arranged between men and employers without a strike.

A number of men were engaged in Lowell Monday to go to the Blake Works in Cambridge, but the strikers were alert and induced nearly every one of them to refrain from going to work.

Word came from Springfield to-day that a satisfactory agreement had been reached with the Moore Drop Forging Company by the men. The Page-Storm Drop Forging Company of Chicopee are also reported ready to give the nine-hour day a trial, and the Warwick Cycle & Automobile Company notified their machinists to appear to-day, presumably on favorable terms for the men.

The machinists in this section have been remarkably successful, as a rule, and are much elated, despite the fact that upward of 1300 men are now out. But about one-half this number are the Blake Pump Works men.

The Situation at Providence.

Since the time, almost two weeks ago, when the 500 machinists employed in the Providence Engineering Works and in the Corliss Steam Engine Works branch of the International Power Company went out on strike for the nine-hour day with ten-hour compensation, the attitude of the strikers has been closely watched by the manufacturers throughout this State, as upon the results of this effort by the strikers to compel the mill men to accede to their demands depends the future stand of the employers. The strikers went out in a body one week ago last Monday in obedience to orders issued by the International Association of Machinists, and so far the strike has been conducted in an orderly manner.

The strikers have had many meetings and the strikers' committee has been in conference with the officials of the Providence Engineering Works several times, and upon both sides there seems to be a desire for fairness.

The final meeting of the strikers' committee and the officials of the Providence Engineering Works was to have been held on Tuesday, when, from the meetings that had preceded, it was thought that the demands of the strikers would be granted by the company. The company were willing to accede to the demands of the strikers regarding the nine-hour day, but not the ten hours' pay, and would recognize the union practically, but the seal of the union was not to be put on the agreement. According to the concession of the company the workmen were to be allowed time and a half on all overtime up to 12 o'clock at night, with double time for work after that hour and for all work on Sundays and holidays. One apprentice was to be allowed to every five machinist journeymen and one for the shop at large. The hours of the night gang were to be reduced from 65 hours to 50 hours per week. A proviso was put in by the officials of the company regarding the wage schedule. The company agreed if the business is good for the four months from the time the agreement is signed that they would allow the ten hours' pay for nine hours' work demanded by the union. This clause caused a lengthy debate in the strikers' meeting, and it was finally decided to notify the company that the members of the union would accept the proposition of the officials, except that in relation to the advance in wages, and this was done. The workmen are of the idea that some concession on the wage question should be made by the company, and are now determined to hold out for the full demands.

The first firm in Providence to make concessions to their machinist employees are the Universal Winding Company. Last Monday this company voluntarily granted a 55-hour week at a 60-hour wage schedule to their machinists and tool makers, about 66 in all. This was done entirely on the part of the company, without any agitation or demand on the part of the employees, simply because the officials realized that their machinist

employees wanted the shorter work day and after some consideration it was decided to make the change.

Providence.

PROVIDENCE, R. I., May 29, 1901.—(By Telegraph).—The strike of machinists at the Providence Engineering Works has been declared off officially by the business agent of the International Association, as, late Tuesday night, an agreement was reached and signed by the officials of the company and the strikers' Arbitration Committee. The agreement was reached by the granting of the demands of the strikers by the firm for a nine-hour day, but not the 12½ per cent. increase in the wage schedule. The noncompliance of the company with the latter demand Tuesday afternoon led to considerable difference of opinion, but on the promise of the company that the increase would be given in three months, the strikers finally resolved to accept the condition, and on Friday all hands, 250 in number, will return to their work at the Providence Engineering Works. In making these concessions the Providence Engineering Company recognize the International Association of Machinists, which they have heretofore refused to take cognizance of, but in the drawing up and signing of the agreement the officials of the company refused to allow the use of the official seal of the union; the strikers then refused to allow the use of the Providence Engineering Works seal. However, the agreement is considered binding. The company agree to every demand of the strikers, and promise the increase in wages on September 1. There are still 250 machinists out at the Corliss Steam Engine Works, as the agreement of the Engineering Company does not concern these workmen. It is thought, however, that the satisfactory agreement with the Engineering Works will be a strong argument for a quick settlement of affairs at the Corliss plant.

There has been no change in the following New England cities since last week: Builders' Iron Foundry, Providence; Diamond Machine Company, Providence; Brown & Sharpe Mfg. Company, Providence; Becker-Brainard Milling Machine Company, Hyde Park; Fitchburg Machine Works, Fitchburg; B. F. Sturtevant Company, Boston; National Pipe Bending Company, New Haven; Morgan Construction Company, Worcester; Prentice Bros. Company, Worcester; Goddard Machine Company, Holyoke; New Haven Mfg. Company, New Haven; Automatic Machine Company, Greenfield.

Hartford.

The Cushman Chuck Company of Hartford: "There has been no change since last week in the strike situation at our works. Our men are all out, and we are simply waiting developments."

The Whitney Mfg. Company of Hartford say: "We inclose a circular which will give you what information we have at the present time."

The circular is as follows:

"At a meeting of about 50 of the prominent manufacturers of Hartford and neighboring cities held Monday, May 27, 1901, at 2 p.m., the following resolution was adopted:

"Whereas, The International Association of Machinists and the International Association of Allied Metal Mechanics have formulated certain demands which they have presented to the manufacturers of this country, and

"Whereas, In view of this fact the manufacturers of Hartford and vicinity have deemed it expedient to assemble for mutual consultation; now, therefore, be it

"Resolved, That it is the unanimous sense of this meeting that the manufacturers here represented will not accede to the demands of the International Association of Machinists or of the International Association of Allied Metal Mechanics.

"Steps were also taken toward the formation of a strong and permanent association of the manufacturers of Hartford to co-operate with other similar organizations in the State of Connecticut and throughout the country."

A telegraph dispatch from Billings & Spencer of Hartford says: "Seventy-five men went out, 170 at work; all departments running, some short handed."

Bridgeport.

Harvey Hubbell, Bridgeport, Conn., says: "There has been no change in the machinists' strike situation in our works for the past week, all our men still remaining in their places."

The Curtis & Curtis Company of Bridgeport, Conn., say: "In reply to your letter would say that there has been no change here since the strike began. About 700 men out of 1000 are out in this town, but the indications are that they are getting somewhat tired of it. The manufacturers are standing firm and show a solid front. They refuse to make any concessions or in any way to recognize the union, and insist that the men go back to work as individuals, and on exactly the same basis on which they went out. We have formed an organization among ourselves, known as 'The Manufacturers' Association of Bridgeport,' of which Augustus Bullard of the Bullard Machine Tool Company is corresponding secretary. Yesterday the writer was in Hartford attending a meeting of the manufacturers of that city. They also determined to form an organization similar to our own, and passed strong resolutions refusing to make any concessions. We feel confident that, if we hold out another week or ten days, and we certainly can (a year if necessary), the backbone of the strike will be broken, at least in this vicinity."

The Willmot & Hobbs Mfg. Company of Bridgeport, say: "The situation here remains unchanged, except for the apparent weakening of the strength of the International Machinists' Association. Several manufacturers here have been approached by local representatives who have asked whether the respective manufacturers were disposed to treat with the men if certain things were done in the way of concessions as to hours and regulation pay. The manufacturers here are enraged over the situation and are standing shoulder to shoulder. A large delegation of Bridgeport manufacturers attended the meeting of the Metal Trades Association at the Astor House on Friday last, and another large delegation went to Hartford yesterday and was present at a meeting of the manufacturers of Hartford and vicinity, called for the purpose of considering the strike situation. In view of the conference at Chicago to-day (May 28) between the representatives of the Metal Trades Association and the delegates or committee of the International Association of Machinists, the Bridgeport Manufacturers' Association thought it was expedient to telegraph to Mr. Reynolds such a message as would satisfactorily indicate their adherence to the position they had taken up. This was with the idea of strengthening Mr. Reynolds' hands. The telegram is as follows:

"'Bridgeport Manufacturers' Association at a recent meeting resolved as follows: That the members of this association employing machinists will not accede to the demands of the International Association of Machinists, believing that it is our inalienable right to deal with our employees in their individual capacity, and that the interests of all are best promoted where every man's wage and position is dependent upon his merits. Delegation attended meeting of manufacturers Hartford and vicinity to-day, at which similar resolution unanimously adopted.'

"I am pleased to say that no concessions have been made locally, and that the further we proceed with this strike the more we feel that the great body of machinists find themselves forced into a position of strikers without any desire on their part and actually against their own better judgment. Further correspondence with the Manufacturers' Association of Cleveland was had on May 24, in answer to questions concerning our local organization. Our telegram was as follows:

"'Answering questions yours 22d, have Manufacturers' Association here and many more started throughout New England. No firms have agreed or are likely to agree to machinists' demands. Constitution being mailed. General sentiments your letter entirely indorsed by all Eastern manufacturers and being considered at Astor House, New York, to-day by members Metal Trades Association, who receive large delegation of Bridgeport Manufacturers' Association. Effort there be-

ing made to encourage formation of National Manufacturers' Association connected with local association in every manufacturing locality. The same calculated to deal with all questions of general benefit to the industries of this country."

The E. J. Manville Machine Company of Waterbury state: "There has been no change in our works since the beginning of the strike. Our engine is running, and we have about a dozen men where we should have a hundred, but as far as we are concerned there will be no change in the present stand."

The Cross & Speirs Machine Company of Waterbury say: "The strike situation is just the same as when we wrote you last; in fact the same as it was at the start. There has been no change at our works, nor in any others in Waterbury, and we cannot see any prospect of a change. The manufacturers of Waterbury seem to be finally and always opposed to recognizing the union. The strikers are equally determined. This condition of things puts a settlement far away."

The Harrington & Richardson Arms Company of Worcester are running full time.

Woodward & Powell Planer Company of Worcester say: "There has been no change in the situation since we wrote you last. I believe there is no move whatever among the machinists to organize for the purpose of making demands. Neither is there any move on the part of employers to organize. Matters here pertaining to machinists' strike have been so dormant, and there being no union, a number of concerns have attempted to send their agents here and secure machinists. We do not anticipate a strike in Worcester."

The Athol Machine Company of Athol say: "Our men apparently care nothing about the matter at all; not one of them has made a request for nine hours or more pay. We have always been on good terms with our help and they are perfectly satisfied to let us do as we wish, and we have not as yet given them even a hint of what we intend to do. We shut down June 1 for our annual stock taking and shall then tell our men our intentions."

The Southington Cutlery Company of Southington, Conn., state: "There is no organized machinist labor in this town at present. We see no indications of any trouble."

Windsor Machine Company of Windsor, Vt., say: "We are not a member of the Metal Trades Association, and as our men have made no demands upon us we have not made any counter offer to them. We are running the plant full time and think it would affect our works but little if we did not accede to the demands made in other parts of the country."

The S. W. Card Mfg. Company of Mansfield, Mass., say: "We have nothing new to report and do not believe that any of our machinists belong to the union, and we have no fear of having any trouble with them whatever. We are a little differently situated than some of the shops, being in the country. Most of our men own their own homes here and we do not have that shifting class of employees that are found in the cities, and in that respect we are better off than some of the shops that are located in the manufacturing centers."

The Norwalk Iron Works Company of South Norwalk, Conn., say: "There is no change here at our works. All hands are working full time."

Rogers & Bro. of Waterbury say: "Replying to your letter of the 27th inst., we beg to say we are having no trouble whatever with any department, so far as labor is concerned."

H. C. Fish Machine Works Company of Worcester say: "We have heard nothing about the strike in question, the writer having been too busy to even read the papers."

Wiley & Russell Mfg. Company of Greenfield, Mass., say: "There has been no change as regards the machinists' strike at our works since we last wrote you. This strike has not extended to this place."

Jones & Lamson Machine Company, Springfield, Vt.: "There has been no change since last week in our labor conditions. Everything is running smoothly and the

nine-hour basis has already increased our production per hour."

New York and Vicinity.

In the metropolitan district the situation has undergone but little change since last week. The important manufacturers who were affected last week are holding out firmly and awaiting the result of the conference of the Administrative Council of the National Metal Trades Association at Chicago. Some of the smaller concerns in New York City have acceded to the demands of the men, and in other surrounding points a few manufacturers have also adjusted the matter.

The most important concern in this vicinity having granted the demands is Gould & Eberhardt of Newark, N. J. On Monday morning the men went out and on Tuesday morning all were back to work again.

Among the other concerns who have adjusted matters are S. W. Baker & Co. of Wilmington, Del., and the Pusey & Jones Company of Wilmington. Communications which we have received from them are as follows:

"We are pleased to say that we are running, our men being out but three days, we having made satisfactory arrangements with them. As far as our men personally were concerned they had no cause for complaint, as they were making more money per week than men in other shops in this city, but their going out was more a matter of sympathy."

"Our men did not go out; we adopted the nine-hour system."

Of the New York concerns who have adjusted matters and resumed operations are: The Incandescent Arc Light Company, the Rathburn-Bird Company, Hecla Iron Works, Caswell Iron Works, Jackson Metal Company, Munn's Wire Company, Waite-Bartlett Wire Company, Balzer Motor Company, Hercules Motor Company, Fred. Pierce Company, Coles Company, Koberstein Machine Company, Plazer Motor Company, Kimberger-Vreeland Company, all of New York, and the Foster Machine Company and the Fulton Company of Brooklyn.

The larger concerns in New York City who were affected last week have been unable to settle the difficulty owing to the refusal of the union agitators to allow the men to return to work pending arbitration. Two conferences of the members of the second district of the Metal Trades Association, which comprises New York and New Jersey, were held in New York during the last week. Each of these meetings was unproductive of conciliatory measures, and they only brought the manufacturers together more solidly. At one of the meetings a resolution was framed providing that the men shall return to work while arbitration proceedings were in progress, but the local lodge of the machinists would not allow this. Walking Delegate Warner stated that the agreement which the machinists were violating was a very good one and that they would promise to abide by it in case of future trouble, but the present difficulty must be settled regardless of its existence. This expresses the sentiment of the union leaders precisely, but such sentiment came far from placing the employers in a conciliatory mood.

The second meeting of the manufacturers was attended by a large delegation of employers who were not members of the Metal Trades Association. Many of them came from the New England States. They all agreed to stand firmly to the purpose of the organization and thus aid in ramifying the stand of the employers. Some of them applied for membership in the association, but no applications have been acted upon during the last week.

These meetings had but one effect: The binding together more strongly of the manufacturers in this section. This action it is held more than overshadows the concessions granted by a few concerns in the district.

R. H. Wolff & Co., Limited, of New York, inform us that there has been no change at their works since last week.

The Garvin Machine Company, of New York say: "The only change in the strike here in our works now is

that some of our best men are returning. Four more are in to-day, giving us a working force now of nearly one-half. We have made no concessions at all to the men. They have come back on the notice we posted a week ago. Should anything new turn up we will advise you, as we think your way of showing up the strike situation is highly commendable. The position on which we stand to-day is that of every manufacturer having the success of his concern and the welfare of the men at heart, and that is, the employer must deal direct with the employee and not through the walking delegate."

H. R. Worthington Company of Brooklyn say: "No change; standing still."

Howard Iron Works of Buffalo say: "Our machinists are still out and have been since May 1, with very little prospect of settlement, as we, with other members of the association, are refusing to grant the nine-hour day."

Potter Printing Press Company of Plainfield, N. J., report no change whatever in the situation since last week.

New York State.

The Bradley Company of Syracuse: "Answering your letter, would say we have heard nothing whatever regarding the machinist strike. It has had practically no effect in Syracuse that he have heard of."

The Goulds Mfg. Company of Seneca Falls state: "The strike situation in this town is different, we believe, from that anywhere else in that the machinists have taken out with them from every manufacturing establishment here what are known as the Association of Allied Metal Mechanics, including the drillers, common laborers, &c. All the factories here are idle, and no change in the situation since last week."

The Seneca Falls Mfg. Company of Seneca Falls, say: "There has been no material change in the strike situation here since last writing you. We have had a conference with some of our men, but were unable to arrive at a satisfactory understanding."

American Fire Engine Company of Seneca Falls say that "There is no change in the machinists' strike situation at our works. Our factory is closed up tight."

Coldwell Lawn Mower Company of Newburgh, N. Y., say: "We have never had any indication of a strike at our works."

The Brooks Locomotive Works of Dunkirk, N. Y., write us as follows: "We would advise you that our machinists returned to work this morning, and we take pleasure in giving you below statement which we furnished the local papers relative to their return: 'The machinists resumed work at the Brooks Locomotive Works this morning, the company having granted a 10 per cent. advance in wages, as offered before the men left their work, and with the understanding that the Saturday half holiday will be inaugurated for the summer months, during which period 55 hours will constitute a week's work, applying to both day and night shifts.'"

The Snow Steam Pump Works of Buffalo say: "There has been no change at our works in the situation relative to the machinists' strike. They are still all out, and we do not purpose to make any overtures to them looking to their return. Buffalo manufacturers as an association will stand out firmly for a ten-hour day without increase in pay."

The Buffalo Forge Company say: "In reply to your May 27 letter, there is no change in the condition of the machinists' strike at the present time."

The Niagara Machine & Tool Works of Buffalo state: "Our position in regard to the machinists' strike is unchanged. The strike was inaugurated contrary to the agreement with the National Metal Trades Association, of which we are members, and we are determined not to give in. The local association of machinery manufacturers, to which we also belong, passed a resolution to stand out for a ten-hour day."

The Avery Stamping Company, Cleveland, Ohio.: "Up to the present writing there has been no change in the machinists' strike here, all our men being at work."

New Jersey.

Marine Engine & Machine Company, Harrison, N. J.: "Would say all of our machinists went out and have

been paid off, and are no longer considered in the employ of this company. We posted a notice embracing the terms as contained in the joint agreement, which our men excepted to, and we do not propose to open our shop until this question is finally disposed of. We are waiting the action of the Administrative Council of the National Metal Trades Association, who are holding their meeting in Chicago to-day, and will be governed entirely by their decision in this matter."

The Pond Machine Tool Company of Plainfield, N. J.: "No changes have taken place since our last communication."

Walter Scott & Co. of Plainfield, N. J.: "We can report no change in the situation from last week. We are still running full time in the foundry, blacksmith shop, pattern shop, and drawing rooms, and in the machine shops there are only about 35 men."

Hewes & Phillips Iron Works of Newark say: "There is no change in the labor situation in this section of the country. All the large shops are closed down and are firmly resisting the demands of the International Machinists' Union. There is no present prospect of a settlement of the questions at issue, but shall be pleased to keep you fully informed as to any action that may be taken by us or our neighbors."

The New York Shipbuilding Company of Camden, N. J., say: "We authorize you to make the following statement, which is absolutely true:

Cooke Locomotive Works of Paterson, N. J., say: "We have had no strike and do not expect one."

"At the New York Shipbuilding Company in Camden, N. J., about 60 machinists out of 226 are still out, but the company are increasing the number of men at work daily and anticipate no annoyance from the men who have left their employment, most of whom are not residents of Camden. In every other department the company have more men employed now than ever before, and there seems to be no dissatisfaction as to wages or hours."

Crocker-Wheeler Company of Ampere, N. J., say: "We shall remain shut down until we can get enough new men to start up with. We are inclined to concur in the opinion expressed at the recent meeting of manufacturers at the Astor House, to the effect that the most serious aspect of the present situation is that the public and the newspapers are against us, and we ourselves have been unable to get certain members of the daily press to ascertain for themselves the facts as to whether certain establishments were shut down or not and to publish them. The reports printed by many of the papers for the object of pleasing the majority of their readers, who belong to the industrial class, have misled them and increased the trouble. We do not regard either the matter of working hours or rate of wages as of the greatest importance, considering that these are merely questions of supply and demand which are bound to settle themselves upon an equitable basis, but we believe that the determination of the question of whether or not the policy of factories is to be dictated by outsiders or insiders is of vital importance to insiders."

The Watts-Campbell Company of Newark, N. J.: "There has been no change in the position taken by the employers and employees regarding the strike, the condition of affairs being the same as they have been for the past week."

The Situation in Philadelphia.

Nothing of importance has developed during the past week in the situation of the striking machinists in this city. The larger plants remain entirely unaffected and no indications are in evidence that any determined effort will be made to interfere with their work.

The managers of the International Association of Machinists in this city have apparently directed their efforts against the smaller manufacturers, those employing from ten to, say, 50 machinists, and it is among this class that the effect of the union's demands has been mostly felt and where the strikers have had the most success. Nearly all of the manufacturers who refused to grant the wishes of the men last week still maintain the same position, and most of them have been able to

keep their plants in operation without any serious difficulty. In all of these cases the men striking have been discharged, paid off, removed their tools, and the various managers say they will have no further dealings with them except as individuals.

Among the smaller manufacturers there have been additional cases of men going out, and in several cases the demands of the men have been granted. Other manufacturers have made satisfactory arrangements with their men and they have returned to work. On the whole, the situation appears much less active and aggressive than it was last week, and none of the manufacturers appear to be affected to such an extent that their plants are entirely idle.

Of the 189 machinists employed by Edward Harrington, Son & Co. 175 remained at work on a basis of 57½ hours' work and 60 hours' pay. Fourteen men who insisted on 54 hours' work were discharged and paid off.

At the plant of Tinius Olsen 11 men went out, making the usual demand. This was granted and the men returned to work.

A number of machinists went out at the Otto Gas Engine Works, but as a satisfying agreement was reached they returned to work.

The Moore & White Company of Philadelphia: "The situation here in regard to the strike remains about the same. Those of our machinists who went out are being replaced and work is being gone ahead with as usual."

The American Pulley Company of Philadelphia state: "Some machinists left us; they have been paid off and we are getting along without them."

Barr Pumping Engine Company of Philadelphia say: "At the present moment we cannot say that there is any appreciable change. The manufacturers seem to be determined to resist what they consider a most unreasonable demand on the part of the labor organizations."

The Philadelphia Pneumatic Tool Company, Philadelphia: "We are in receipt of yours of the 27th, and in reply would say that the position is the same as when we last wrote you. Our men are all at work and we do not anticipate any trouble with them in the future."

Pedrick & Ayer Company of Philadelphia: "We are in receipt of your favor of the 27th, and beg to advise you that there is no change in the machinists' strike, and, furthermore, beg to advise you that our works are running without their assistance."

Williamson Bros. Company of Philadelphia: "Replying to your favor relative to the strike now existing at our works, permit us to say there has been no material change in the situation from that of last week. Matters are progressing as favorably as we had expected."

The Tabor Mfg. Company of Philadelphia say: "We have effected a to us very satisfactory settlement of our strike. Our 30 machinists struck, as you know, on Monday, the 20th inst. We were interviewed by the shop committee repeatedly, and finally Messrs. Keegan of the International Association of Machinists and Tracy of the Federation of Labor called on us, and to them we made the same statement we made to the committee—viz., that the simple question of shorter hours being settled before the strike by our membership in the National Metal Trades Association and its agreement with the machinists, the increase of wages was the only debatable point. We stated also that we deprecated strikes and did not purpose to yield to that kind of treatment; that we were willing to leave the whole question of wages to arbitration, or, if our men would leave the matter entirely in our hands, we would meet a committee of our own men and endeavor to reach a satisfactory adjustment, but would do nothing in the way of arbitration or further consideration of the matter while the men were out in the street. Mr. Keegan surprised us by saying that he thought he could arrange to have all our men in the shop Monday morning on this understanding—i. e., without any concession or pledges on our part pending the settlement outlined above. Late Saturday night he telephoned he had succeeded in this arrangement, and yesterday morning the shop started full at 7 o'clock. At 4.30 yesterday we met a committee of our

own men and told them that, knowing how hard it was for men who had gone out on strike to return to work without pledges or concessions, we appreciated the cordiality of their action, and had decided to offer them one-half of the increase in wages per hour they demanded—viz., 6¼ per cent., this to be figured to the nearest ½ cent on the hourly rate for each man. We also stated that at the end of six weeks, if they were able to prove to our satisfaction the claim they made that if we would give them the full increase of wages they would give us an equivalent in increased output, we would then pay them the remaining 6¼ per cent. increase. The very satisfactory feature of it is that our men came back after a week's strike without other argument or motive than their faith that we would treat them fairly."

Dienelt & Eisenhardt of Philadelphia: "Replying to your favor, we would state that the machinists' strike does not affect us. For years we have shut down on Saturdays at noon, making 56 hours per week. Most of our hands have been in our employ for years; we pay them the highest wages; there is no dissatisfaction among them and no demands whatever have been made by them. We have both union and non-union men in our employ, but the non-union men are in the majority."

Thos. S. Dill of Philadelphia states that there has been no change since last week, their men being still out.

The Enterprise Mfg. Company of Pennsylvania of Philadelphia advise us that the situation, as far as the machinists' strike is concerned, is more favorable to them this week than last, as they have put on quite a number of machinists and tool makers, and expect in a very few days to have all the assistance they need.

P. Hollingsworth Morris reports that there is no change in the situation at his works. "I have had no trouble with my employees and do not anticipate any."

Hoopes & Townsend Company of Philadelphia say: "We have had no difficulty with the machinists at our works, neither have we learned of any dissatisfaction among those who are now employed here, and have been employed for some time. Everything is working very smoothly, and we do not anticipate any difficulty at all with our machinists. Of course you will understand that we do not employ a great many."

The Situation in Pittsburgh.

PITTSBURGH, PA., May 28, 1901.—(By Telegraph).—Very little trouble has been felt in Pittsburgh from the machinists' strike, which was inaugurated in other cities on May 20. Possibly one-half dozen concerns have not yet arrived at agreements with their men, but all told there are not 100 machinists in Pittsburgh idle to-day.

Seaman, Sleeth Company of Pittsburgh say: "Noting your inquiry, we beg to say we have not been affected by the machinists' strike in any way and did not know that there was a strike so far as we are individually concerned, as our men are all working and we have had no demands or complaints."

The Mesta Machine Company of Pittsburgh, Pa., say: "As stated to you before, our machinists have been working nine hours per day for the past two years, and we have no strike nor dissatisfaction among our men."

York Mfg. Company of York, Pa.: "We beg to say that there is no material change in the strike situation at our works. We will remain firm in our position and propose to continue to do so."

The Gleason Tool Company of Rochester, N. Y., state: "The local members of the National Metal Trades Association are the Otis Elevator Company, Knowlton & Beach, and Gleason Tool Company. Their machinists, with those of one other shop, Chas. Bridgeford's, are on strike. The other shops, employing about 70 per cent. of the machinists, have all conceded the demands more or less reluctantly. The minority above are standing out in support of the Metal Trades Association, since Mr. O'Connell repudiated his agreement with the association for arbitration about wages. They had advanced wages when the cut of three hours was made November 20."

Wilmington.

The Betts Machine Company of Wilmington say that "There is nothing new in the situation here."

The Harlan & Hollingsworth Company of Wilmington say: "We beg to state that there has been no material change since last week in the machinists' strike at our works, except that we have a number of new men in the car machine shop and several coming in in the other machine shop, and we have every reason to believe that when our machinists realize the fact that all the shipyards in the country with whom we bid in competition are not granting the nine hours with ten hours' pay, they will realize the fact that it is simply an impossibility for us to accede to their demands with our present contracts on hand, and that nonunion men will come in and we will succeed in getting men from other localities to take the places of the strikers."

The J. Morton Poole Company of Wilmington state "that at this writing there is no change in the strike situation at our works, our machinists being still out."

Baltimore.

F. S. & G. L. Brown of Baltimore say: "No change since last week. Our union men are still out. Our shop is running very satisfactorily with the force that remained. Perhaps our particular position in this matter is not generally understood, so we will state it as briefly as possible. On May 14 we submitted the following, which seemed to meet with the approval of all the men: Commencing on May 18, 1901, 54 hours shall constitute a week's work, with pay remaining the same as at present paid for 60 hours. Hours of work shall be as follows: From May 1 to October 1, Monday, 7 a.m. to 12 m. and 12.30 p.m. to 4.30 p.m.; Tuesday, 7 a.m. to 12 m. and 12.30 p.m. to 5.30 p.m.; Wednesday, 7 a.m. to 12 m. and 12.30 p.m. to 5.30 p.m.; Thursday, 7 a.m. to 12 m. and 12.30 p.m. to 5.30 p.m.; Friday, 7 a.m. to 12 m. and 12.30 p.m. to 5.30 p.m.; Saturday, 7 a.m. to 12 m. From October 1 to May 1, 7.30 a.m. to 12 m. and 12.30 p.m. to 5 p.m. every work day. For the past four or five years our men have asked for the half holiday on Saturday during the summer, and were willing to lose the time. Now when we make the same arrangement and pay the men for it, the union, for some unaccountable reason, refuse to let the men accept it. We shall continue to run as at present, feeling that we are in the right, and any who do not want to accept the above terms are not obliged to do so. The same result is obtained, whether we run nine hours each day or 54 hours each week. In fact, we consider our plan the better, as the time gained by the men is in bulk, so that some use can be made of it for pleasure or recreation."

The Detrick & Harvey Machine Company of Baltimore state: "There has been no change in the machinists' strike at our works. We have 150 machinists out, but are still running our blacksmith shop and pattern shop."

The White & Middleton Gas Engine Company of Baltimore say: "We have not changed our ideas in reference to the nine-hour system, and although our men have gone out on a strike there are quite a number of our first-class men that have remained at their posts, and we are still running our factory and are gradually accumulating quite a nice force, and from the present outlook we shall within the next 30 days have everything going in full blast as usual. We have been threatened by the Machinists' Union, through one of their delegates, that they are going to hamper our business all they can. We have done nothing to cause this unfriendly remark, as we promised our men that as soon as this movement grew to be universal among the manufacturers all over the country we would be among the early majority."

The Maryland Steel Company of Sparrow's Point, Md., wire us as follows: "No material change, except that a few have returned to-day."

There has been no change at the works of the Ott. Mergenthaler Company of Locust Point, Md.

Henry McShane Mfg. Company of Baltimore say: "We have had little or no trouble with our machinists, and do not look for any in the future."

The Situation at Cleveland.

CLEVELAND, OHIO, May 28, 1901.—(By Telegraph).—The machinists' strike situation is rapidly clearing and it is thought, judging from the present rate the men are returning to work, all of the shops affected will have full forces by the end of the week. The Cleveland Manufacturers' Association reports that about 174 men are out at the present time out of 244 who were out a week ago. The 50 machinists of the Variety Iron Works are all still out, as are the 27 who left the Cleveland Punch & Shear Works. Warner & Swasey have 80 men out, compared with 100 a week ago. Nearly all the men have returned to work at the Garry Iron & Steel Company, River Machine & Boiler Company, and Chase Machine Company. Out of the remaining 25, 18 left F. B. Stearns & Co., automobile manufacturers, yesterday, the only ones to go out since the general strike. The others are scattered among small shops. Those who have returned came back individually on the old scale. None of the largest factories have been affected and are working as usual. It is now known that the local labor leaders made every effort to bring about a general strike, but failed because the men realized the futility of fighting the strong local association. W. D. Sayle, president of the Cleveland Manufacturers' Association, is in Chicago attending a meeting tomorrow of representatives of local associations in leading cities for the purpose of forming a strong central organization for common defense against labor troubles.

The Situation at Cincinnati.

There was a meeting of the Manufacturing Machinists' Association held on May 27. It was an executive session and nothing was given out for the press, except that there had been several new members admitted; that there had been no conference of any sort with the men or with any representatives of the machinists' union; that it was the purpose of the association to stand firm and yield nothing to the strikers' demands, and that the situation had not changed during the past week. The reports in the daily papers of propositions being made by the Niles Tool Works and some others to compromise are absolutely false. There are no shops running here except a few job concerns, one or two shops which do a special business and are hardly to be classed as machine shops, and two regular machine makers, one employing 20 hands and the other 15.

Failure of the Attempted Chicago Local Arbitration.

Representatives of the Chicago machinery manufacturers and their union workmen in the machinists' trade, who met Friday, May 24, in the Grand Pacific Hotel, failed to reach an agreement on the wage scale to be fixed for the newly inaugurated nine-hour day. The union stood out for an increase of 10 per cent., holding that figure to be the minimum increase that would guarantee the workmen against a cut in their daily pay through the operation of the shorter work day. This move was met by the manufacturers with an offer of 5 per cent. increase. There was then a long discussion and at last the manufacturers made a final offer of 6¼ per cent. After taking a secret vote on this proposal the union men announced that it was rejected. It was then agreed by both parties to refer the question for settlement to the National Joint Board of Arbitration. The latter body, composed of representatives of the National Metal Trades Association and of the International Association of Machinists, will take the matter under consideration at a meeting to be held in Chicago on Wednesday, May 29, when it is hoped that all the issues involved in the disarrangement of the old wage scale through the recent abrogation of the ten-hour work day will be arbitrated to the perfect satisfaction of the interested parties. The Chicago machinists are continuing at work, awaiting the result of the national arbitration.

The Scranton Bolt & Nut Company.—In the last issue of *The Iron Age* the statement was printed that the Scranton Bolt & Nut Company, at Scranton, Pa., were reported closed. This was not correct. The facts are that on Monday, the 20th, only 22 of the machinists

and blacksmiths quit work. This had no apparent effect upon the operation of the rolling mills and the bolt and nut department. The output of the week has been entirely satisfactory and up to the usual standard.

The Administrative Council at Chicago.

CHICAGO, ILL., May 28, 1901.—(By Telegraph).—The Administrative Council of the National Metal Trades Association held a special meeting in Chicago to-day at the Great Northern Hotel. They had invited the local associations of machinery manufacturers in numerous cities to send representatives for the purpose of conferring with regard to the machinists' strike and if practicable to decide upon a joint policy to govern their actions. Although the Metal Trades Association have a large membership, including many of the most important employers of machinists in the country, a great number of machinery manufacturers are not members. Their interests being identical with those of the members, it was deemed advisable to secure their co-operation in whatever course might be decided upon. A private meeting of the council was held in the morning, at which the members reported the condition of affairs in their respective sections. The afternoon session was a joint meeting of the council and the representatives of the local associations. President Edwin Reynolds of the National Metal Trades Association occupied the chair. The representatives of the local associations were called on, and reports were thus received from many localities all over the country. While the proceedings were secret, it has been learned that, with the exception of Chicago and St. Louis and some small cities, in which the machinists have continued at work, and the local unions have endeavored to adjust matters by arbitration, the men are considered as having completely annulled the New York agreement by walking out on May 20. The sentiment of the employers is, therefore, strongly against any further negotiations with the union and in favor of fighting to a finish.

The Chicago employers, however, are committed to arbitration, and an effort will be made to settle the difficulty so far as this city is concerned.

President Reynolds has been requested to appoint three persons to represent the manufacturers and to meet representatives of the local union on Wednesday. It now seems probable that each locality may endeavor to settle the strike independently. If this should prove to be the case it is clear that in not a few cities a very determined effort will be made to free the shops from all interference by walking delegates, shop committees or union rules. Another meeting of the council will be held this evening, and another joint meeting on Wednesday morning.

The Tuesday Evening Session.

CHICAGO, ILL., May 29, 1901.—The Administrative Council at the Tuesday evening session unanimously adopted a resolution declaring the New York agreement abrogated by the action of the International Association of Machinists in ordering a strike, and decided to issue an address to all manufacturers informing them of the situation and asking their co-operation in opposing the demands of the union. It is understood that some of the most powerful local associations of machinery manufacturers have decided not to grant the nine-hour day, but will probably insist on their men working 57 hours per week, with perhaps 55 hours in the summer months.

The Chicago manufacturers strongly advocated arbitration, and finally it was decided to permit them to telegraph to President O'Connell asking him to appoint three representatives of the union to meet three manufacturers appointed by President Reynolds. Although President O'Connell had previously refused to agree to anything but a national arbitration, he met this request by naming three representatives to meet the manufacturers and arbitrate for Chicago alone.

The Administrative Council again met in secret session Wednesday morning.

The Administrative Council decided not to have any official connection with the Chicago arbitration. An arrangement was made by which J. W. Gardner of Gardner Governor Works, Quincy, Ill.; O. W. Briggs of Twin City Iron Works, Minneapolis, and J. C. Peebles of J. I. Case Company, Racine, Wis., agreed to represent the Chicago manufacturers. They are holding a meeting this afternoon at Great Northern Hotel with Wm. Rebbing, St. Louis; Arthur Holder, Des Moines, and D. W. Roderick, Chicago, representing the Chicago machinists. The impression is no settlement will be effected unless the manufacturers agree to advance wages 10 per cent. and concede the nine-hour day. Settlement of Chicago dispute will not be taken as a precedent for other sections of the country. The Arbitration Committee is still in session and likely to be for some hours. The Administrative Council hope to get through to-night; are now working on resolutions, and, it is believed, on a declaration of principles.

Building Statistics for April.

Statistics of building operations for April in 21 of the principal cities throughout the country, according to *Construction News*, show a gratifying increase as compared with the corresponding month a year ago. In 21 cities permits were taken out for the construction of 9320 building improvements, involving an expenditure of \$57,857,017, against 5746 a year ago, costing \$18,769,937, an increase of 3574 buildings and \$39,087,080 in cost, or 208.24 per cent., or over double the increase for the month of March. It was thought that owing to the activity in the early part of the year, due to the opening of the building season far in advance of previous years, there would be a falling off in the figures later on, but such does not seem to be the case. There is, however, every reason to believe that operations will from this on increase rather than diminish, owing to the large number of new projects which are now accumulating on the hands of the architects throughout the country. The figures in detail are as follows:

Cities.	1901.		1900.		Per cent.	
	Number.	Cost.	Number.	Cost.	Inc.	Dec.
New York (Manhattan and Bronx)	1,356	\$37,629	587	\$7,851	379.25	....
Brooklyn	807	3,947	520	1,547	154.98	....
Philadelphia	1,501	3,145	859	2,389	31.64	....
Chicago	659	2,992	202	662	351.40	....
Pittsburgh	315	1,682	217	990	69.79	....
Minneapolis	534	1,355	426	296	356.69	....
Cleveland	376	908	302	383	136.75	....
St. Louis	333	727	239	579	25.57	....
Milwaukee	175	718	127	394	82.28	....
Washington, D. C.	307	715	226	1,276	....	78.40
Kansas City	471	589	377	482	22.07	....
Indianapolis	371	535	302	291	83.50	....
Seattle	551	590	205	255	130.93	....
Denver	145	373	85	150	148.47	....
St. Paul	102	372	153	125	195.93	....
Cincinnati	283	317	262	331	....	4.55
Detroit	297	488	174	307	58.86	....
Atlanta	262	288	193	90	218.70	....
Buffalo	130	227	103	166	66.84	....
New Orleans	198	160	127	75	118.54	....
Allegheny	48	92	60	119	....	29.11
Totals	9,320	\$57,857	5,746	\$18,769	208.24	....

New York City leads, with a gain of 379.25 per cent.; Minneapolis is second, on an increase of 356.69 per cent.; Chicago, 351.40 per cent.; Atlanta, 218.70 per cent.; St. Paul, 195.93 per cent.; the smallest increase in the same class of cities being St. Louis, with 25.57 per cent. Only three cities out of the 21 show losses, and these are Washington, 78.40 per cent.; Allegheny, 29.11 per cent., and Cincinnati, 4.55 per cent.

It is said the J. M. Guffey Petroleum Company, recently organized with a capital of \$15,000,000, to develop the new oil fields in Texas, have received a contract for 250,000 barrels of oil from the Southern Pacific Railroad, to be used as fuel on that line.

The Mechanical Engineers.

(By Telegraph.)

MILWAUKEE, Wis., May 28, 1901.—The forty-third meeting of the American Society of Mechanical Engineers was called to order in the Assembly Room in the Plankinton Hotel, Milwaukee, Wis., on Tuesday evening, 28th inst., at 8.30 o'clock, with President Samuel T. Wellman in the chair. Professor Warren S. Johnson, president of the Johnson Electric Service Company of Milwaukee, was introduced and welcomed the delegates on behalf of the city. He gave some interesting statistics covering the city of Milwaukee, its many and varied industries, all of which was attentively listened to and heartily applauded. President Wellman responded to the address of welcome, and expressed the hope that the present meeting would prove more beneficial to those in attendance than any which had preceded it, and after a few congratulatory remarks concerning the large attendance at the opening session called the meeting to order. The first business presented was the paper entitled "Requirements of Electricity in Manufacturing Work," by W. S. Aldrich of the University of Illinois, Champaign, Ill. This was followed by a paper, entitled "Portable vs. Stationary Machine Tools," by John Riddell, mechanical superintendent of the General Electric Company, Schenectady, N. Y.

The paper by W. S. Aldrich brought out a spirited and interesting discussion, the majority of those present taking part in the discussion agreeing with Mr. Aldrich, so far as the main points of his paper were concerned. Some interesting instances were given of the application of electricity, cases being cited where steam driven pulleys were unable to accomplish certain work, which was readily accomplished by electricity.

Prominent among those who discussed this paper were D. C. Jackson, University of Wisconsin, Madison, Wis.; R. A. Widdicombe, Western Electric Company, Chicago; F. V. Henshaw, Crocker, Wheeler Company, Ampere, N. J.; Geo. N. Comly, Solvay Process Company, Syracuse, N. Y.; S. L. Knox, General Electric Company, Schenectady, N. Y.; Prof. Warren S. Johnson, Milwaukee, Wis.; H. G. Reist, General Electric Company, Schenectady, N. Y.; Samuel T. Wellman, Cleveland, Ohio.

In the absence of Prof. Chas. H. Benjamin, Case School of Applied Science, Cleveland, Ohio, his contribution to the discussion was read by Secretary Hut-ton.

The evening session adjourned at 10 o'clock, and was followed by an informal reception and smoker, which was tendered the delegates in the main dining room of the hotel. During the evening the local Ladies' Committee entertained the visiting ladies in the hotel parlors.

The meeting was called promptly to order at 10 o'clock with President Wellman in the chair. The secretary read the report of the Committee on Election and announced the election of 146 members, as follows: Members elected, 63; promoted to full membership, 15; promoted to associates, 2; associates, 10; juniors, 56.

The report of the committee having in charge the junior meetings was presented and read. The committee expressed the belief that the present system of conducting these meetings was unsatisfactory and suggested that some change be made in the methods at present in vogue.

The first order of business of this session was the report of the Committee on Standardization of Methods of Making Engine Tests. The chairman of the committee, Prof. J. S. Jacobus, was unable to be present, and in pursuance with his telegraphed suggestion the report was postponed until Thursday morning. The secretary then read the paper prepared by Geo. A. Hutchinson, Anaconda, Mont., entitled "The Practical Application of Superheated Steam." Following the reading of this paper E. H. Foster of New York City was presented and read the paper which he had prepared, entitled "Superheated Steam." These two papers, covering the same subject, were discussed together.

A very interesting discussion followed which was participated in by Professor Goss, Lafayette, Ind.; Professor Bull, Madison, Wis.; G. Y. King, Chicago, and Professor Weil, Milwaukee. In the absence of F. H. Ball, Bound Brook, N. J., the secretary then read the paper prepared by Mr. Ball, entitled "Drafting Room and Shop Systems." This paper was freely discussed, and the paper by H. G. Reis, entitled "Blue Printing by Electric Light," was then presented and read. The paper prepared by A. W. Robinson, entitled "Rules for Drawing Office," was read by the secretary. The secretary also read the paper prepared by A. J. Rossi, entitled "Influence of Titanium on the Properties of Cast Iron and Steel." C. W. Hunt then presented and read his paper, entitled "New Connecting Rod End." The discussion on the last three papers read was postponed until Thursday morning, and on motion the convention adjourned. At 12.30 p.m. Wednesday afternoon the local Entertainment Committee had in waiting a liberal supply of electric cars and some 200 of the delegates boarded them and visited the following plants: The Edw. P. Allis Company, Nordberg Mfg. Company, Filer & Stowell Mfg. Company, Christensen Engineering Company, and Vilter Mfg. Company, returning to the hotel at 6 o'clock after a most enjoyable visit. The several plants visited were not all running full on account of the machinists' strike, but sufficient was seen to prove to the delegates that no mistake was made in holding the meeting of the association in Milwaukee. During the morning the ladies of the party were entertained with a carriage drive, and in the afternoon they visited the Public Museum and Library Building. Wednesday evening a reception and conversazione was tendered the delegates at the Milwaukee Club. The reception was well attended by the delegates and their ladies and the dancing was kept up until the wee small hours of morning.

New Publications.

TINSMITHS' HELPER AND PATTERN BOOK. By H. K. Vosburgh. Published by David Williams Company, 232-238 William street, New York. Price, \$1. Size, 4 1/4 x 6 3/4 inches; 120 pages; 53 illustrations.

This book is well known to many of the older members of the tinsmithing trade, who have used it as a stepping stone in becoming masters of their trade. It is written by H. K. Vosburgh, who knew from practical experience the needs of many tinsmiths. The first 66 pages are devoted to the simpler problems in pattern cutting, such as are likely to come up every day in the tin shop in making simple work. It describes the method of cutting can breasts, flared tinware, scale scoops, oval boiler covers, lips for measures, elbow patterns, &c. The next few pages are devoted to mensuration, describing how to find the area of a circle, circumference of a circle, the contents of a sphere, a cylinder, a cone and other information relating to the work of a tinsmith. Tables give the weight of black sheet iron, sheet lead and galvanized iron sheets, with their dimensions; the weight of lead pipe per foot, the weights of tin plates and sheet copper. Several pages are devoted to tables giving the circumference and area of circles, the capacity of cans of different dimensions 1 inch deep and the rule for finding the capacity of cisterns. The last few pages of the book are devoted to a series of practical recipes, including mixtures for solders of different kinds, soldering fluxes and various cements. The book is of a size and so bound as to be convenient for carrying in the pocket.

The officials of the Santa Fé Railroad are said to be seriously contemplating the substitution of oil for coal on their Texas lines. As oil promises to be very plentiful in Texas and coal is so expensive there, the use of the former fuel would greatly reduce the operating expenses of the Texas roads.

David Urie, superintendent of the works of the Urie Mining Machinery Company, of Kansas City, Mo., died May 19 at his home in that city, aged 72 years.

A Contest Over Carnegie Stock.

PITTSBURGH, Pa., May 29, 1901.—(By Telegraph).—In the courts at Pittsburgh a bill in equity has been filed for William W. Blackburn, secretary of the Carnegie Company, in his capacity of trustee for the Carnegie Company, against Andrew M. Moreland, president of the Moreland Trust Company, and ex-secretary and ex-trustee of the Carnegie Company, in which Mr. Blackburn names the Carnegie Company as co-defendant, and seeks to secure the transfer and control of Carnegie Company stock of the value of \$2,376,000, acquired by Moreland when he held the Carnegie Company trusteeship and which he now holds and has refused to transfer unless he is paid \$500,000, claimed as compensation for services as trustee.

The stock, which Mr. Blackburn alleges is unlawfully held by Moreland, is part of \$3,200,000 of the capital stock of the Carnegie Company, put in trust by the subscribing shareholders of the Carnegie Company at the time of their incorporation for the benefit of deserving employees and officials of the company. The bill of Mr. Blackburn asserts that the stockholders of the Carnegie Company entered into an agreement which was made a part of the plan of organization to set aside 2 per cent. of each individual's holdings, to enable the employees to acquire an interest in the company, following out the plan of the stock distribution which Andrew Carnegie had made a feature of the business of Carnegie Bros. & Co., Limited, and the Carnegie Steel Company, Limited, in years past, in which manner many of the incorporators of the Carnegie Company secured their interests. The bill recites that after the resignation of Moreland as secretary and director, October 4, 1900, and the election of Blackburn, the Board of Directors sought to have the shares held by Moreland as trustee transferred to Blackburn, for the purpose of distribution; but it was found that some of the stockholders claimed the right to control the distribution and asserted the Board of Directors did not have the power to make any distribution of stock without the approval of the stockholders. Moreland then refused to comply with the request of the board unless the stockholders assented to the transfer. The directors then submitted an agreement to each stockholder which assented to the distribution of the stock under the absolute control of the Board of Directors of the Carnegie Company, and authorized the board to return to any stockholder unwilling to sign the agreement the portion of stock contributed by such dissenting shareholders. This agreement was signed by all except the representatives of 79 shares. Subsequently H. C. Frick, F. T. F. Lovejoy, Henry Phipps, John Walker, A. R. Whitney and others revoked their signatures to this agreement and demanded that their signatures be stricken off. The directors thereupon proposed a resolution directing Moreland to transfer to stockholders who had revoked their signatures and to several others who had not revoked their consent, but whose shares were small, their respective shares, and at the same time directed Moreland to transfer the balance of the stock in his custody to W. Blackburn, trustee. Moreland's right to commission for his services as trustee is denied because he was an officer of the company, and when the stock was placed in his custody he was simply acting in the line of his duty as secretary, as his predecessor in the Carnegie Steel Company, Limited, had done. No arrangement or understanding claimed existed that he was to receive any special compensation because the shares were issued in his name as trustee. Mr. Blackburn asks for an injunction restraining Moreland from transferring the stock of the company to any other person than the plaintiff; also an injunction upon the Carnegie Company restraining them from permitting any transfer of the stock held by Moreland to any other person than the plaintiff.

The Trigg Shipyards at Richmond, Va., are to be greatly enlarged. The capital stock is to be increased from \$2,000,000 to \$3,000,000 and the number of operatives will be increased to about 2700.

MANUFACTURING.

Iron and Steel.

The Sharon Steel Company, Sharon, Pa., have again increased their capital stock from \$4,000,000 to \$5,000,000. A part of the basic open hearth plant of this concern is now running, and it is expected to have the entire plant in operation not later than July 1, with the exception of the blast furnace, which will not be ready until a later date. The Sharon Steel Company have decided to build a second blast furnace, to be of the same size as the first one, as a capacity of only 600 tons per day will not be sufficient to give the steel works all the metal it needs, and it has therefore been decided to build another furnace. The ten-mill plant of the Sharon Tin Plate Company, an identified interest of the Sharon Steel Company, has been about completed; some of the mills are already running and the rest will be started in a few days. It will be recalled that the entire output of these ten mills has been sold for a period of five years to the American Tin Plate Company. Work was started some time since on ten more mills by the Sharon Tin Plate Company, and these are expected to be finished and ready for operation by the latter part of this year.

Clinton Furnace of the Clinton Steel Company, South Side, Pittsburgh, which has been idle for several months while being rebuilt, has been put in blast. The height of the stack has been raised from 75 feet to 90 feet and the diameter increased. New blowing engines have been installed and other additions made to the equipment. The capacity of the stack has been increased from 200 to 300 tons per day. The Clinton Iron & Steel Company are building a new boiler house and are installing a filter, the intention being to filter all water used in the boilers. A new skip hoist has been added to the furnace stack, of the Walter Kennedy type.

Jones & Laughlins, Limited, who have been building a rod mill in their American Iron & Steel Works, South Side, Pittsburgh, for several months, have completed it and the first rods were rolled last week. The mill started off very nicely and is now running steadily, turning out about 300 tons of rods per day.

The Anniston Rolling Mill Company, Anniston, Ala., have completed overhauling and equipping their plant and have been in full operation since they commenced running early in April. They are having a fair run of orders for bar iron.

The Wheeling Steel & Iron Company have commenced active work on their new tube mill at Wheeling, W. Va. The plant will make both iron and steel tubes and electricity will be used for motive power. The 30 puddling furnaces in the Benwood Works of this concern will be utilized in making iron for the iron pipe. The plant is expected to turn out about 400 tons per day.

The contract has been awarded for the erection of the wire mill for the Crawfordsville Wire & Nail Company, Crawfordsville, Ind. The building will be 102 x 270 feet, and it is hoped to have it completed by July 15. Plans are also being considered for a warehouse 85 x 220 feet.

The new wire mill of Cobb & Drew, at Sterling, Ill., has begun operations. They have nine blocks running. A new one-story building, 80 x 108 feet, is being erected, which will be partly used for warehouse and partly for manufacturing purposes.

The National Rolling Mill Company, Muncie, Ind., have their building completed and the foundations for machinery well under way. All of the machinery, except pumps and a few small articles, has been contracted for and some of it is on the ground. They expect to be ready for business early in July.

The St. Clair Steel Company of Pittsburgh have purchased 35 more acres of land at Blair Station, where the concern are building an open hearth plant. The name of the station and post office will be changed to Clairton. The contract for the iron and steel work for the three blast furnaces to be built by the St. Clair Furnace Company has been given to the Ritter-Conley Mfg. Company, Pittsburgh. The contract for seven blowing engines has been given to the Southwark Foundry & Machine Company of Philadelphia. As noted in these columns some time since, Mackintosh, Hemphill & Co. of Pittsburgh will build the blooming mill, while the Forter-Miller Engineering Company, Westinghouse building, Pittsburgh, will do the brick work and build the soaking pit furnaces.

Application has been made by the trustees of the Continental Iron Company to Referee in Bankruptcy L. F. Hunter, at Warren, Ohio, for an order authorizing the trustee to borrow not to exceed \$7,500 for the purpose of operating and improving the plant known as the Wheatland mill, under the former orders of that court made on January 26 and May 7, 1901. A hearing will be had on the application on June 3 at the courthouse in the city of Warren.

It is the purpose of the American Sheet Steel Company, New York City, to move the six sheet mills at Chester, W. Va., to Vandergrift, Pa., adding two new sheet mills at Vandergrift. This change will be completed at the earliest date consistent with the present conditions prevailing in the construction departments, which are all quite busy. In regard to the claim that it will be difficult to find homes for so many men at Van-

dergrift, who will go there on account of the removal of these mills to that place, we may state that no trouble is anticipated in this direction. The Vandergrift Land & Improvement Company will look after the interests of the men in this particular.

The West Leechburg Steel & Tin Plate Company, Leechburg, Pa., have recently made some additions to their works which will considerably increase their output of black sheets.

The Garrett-Cromwell Engineering Company, New England Building, Cleveland, Ohio, are preparing plans for a large number of improvements to be made to the plant of the Colorado Fuel & Iron Company, Pueblo, Col. The new work will consist of ten 50-ton open hearth steel furnaces, a 40-inch blooming mill, 20-hot mill tin plate plant, sheet mills (size not fully decided upon), two Garrett rod mills and a wire nail mill. The entire cost of the new departments will foot up \$3,000,000. It is expected that the output will average 1000 tons of finished product per day.

The Columbus Iron & Steel Company, Columbus, Ohio, manufacturers of basic, malleable and foundry pig iron, have awarded the contract to the McMyler Mfg. Company of Cleveland for the construction of a new apparatus, which is expected to greatly expedite the handling of the slag and clinder from their two furnaces. The clinder will be run directly from the furnaces into a pool of water. The action of the water on the hot substance will granulate it and render any crushing unnecessary.

The plant of the Reading Iron Company, at Danville, Pa., was damaged to the extent of about \$100,000 by fire on the 23d inst. The bar and skelp mills, roll shops and the greater part of the puddle mill were almost completely wiped out. The loss is partly covered by insurance.

The Harrisburg Rolling Mill Company, at Lochiel, Pa., have announced that they will restore the old scale of puddlers' wages on June 1 to \$3.50 per ton. A similar notice was posted at the puddle mills of the Chesapeake Nail Works.

The Duncannon Iron Company, Duncannon, Pa., have notified the puddlers in their employ that on June 3 the price per ton would be advanced from \$3.25 to \$3.50.

Notice of an increase of puddlers' wages from \$3.25 to \$3.50 per ton has been posted in the York Rolling Mill of the Susquehanna Iron & Steel Company. The increase will go into effect on June 3.

General Machinery.

D. R. Sperry & Co., North Aurora, Ill., have been making a number of improvements in their plant. They have recently added considerable machinery to the equipment of their machine shop and have enlarged other departments.

The shops of the Kanawha & Michigan Railroad will be removed from Point Pleasant, W. Va., to Middleport, Ohio.

To fill the vacancies caused by the resignation of several of the officers, the Board of Directors of the Dobbie Foundry & Machine Company, Niagara Falls, N. Y., have elected the following new officers: J. Challis Jones, treasurer; Fred. Wiard, secretary; John Dobbie, general manager.

The contract for a complete central air compressing plant was awarded to the McKiernan Drill Company by Shanahan, Woolfolk & Co., South Framingham, Mass., who have secured a large contract from the Metropolitan Water Boards of Boston, Mass., for an aqueduct consisting of two tunnels, &c. The cost of the contract secured by the McKiernan Drill Company is in the neighborhood of \$25,000.

The Loetzer Valve & Mfg. Company, Towanda, Pa., have incorporated for the purpose of manufacturing the C. E. Loetzer patented dual valve system. At present they are having their valves made by contract, but intend, at an early date, to establish a plant of their own, when other specialties of Mr. Loetzer will be added to the present line.

The Aurora Foundry & Machine Works, Aurora, Mo., have incorporated with a capital of \$75,000 to continue the manufacture of mining machinery. The officers are C. H. Cole, president and treasurer; Jared R. Woodfill, Jr., vice-president; Loy T. Le Bow, secretary, and C. C. Mathey, manager.

F. C. Austin Mfg. Company of Harvey, Ill., manufacturers of dirt moving machinery, will establish a branch at Houston, Texas, which will be under the management of E. H. Heaton.

The Girard Foundry & Machine Company, Girard, Ohio, have incorporated with a capital of \$10,000, to do a general foundry and machine business. Plans are under way for the construction of an entirely new plant.

T. Murphy, proprietor of Jacksonville Machine & Iron Works, iron and brass foundries and machinists, Jacksonville, Fla., whose plant was destroyed by fire, has temporary buildings up and is now making castings. New tools and machinery are on the way, and in a few days the machine shop will be in operation. Later on new and modern shops will be erected.

The Chattanooga Machinery Company, Chattanooga, Tenn., have been awarded by the Chattanooga Car & Foundry Company the contract to do all the machine work on the structural iron that will be used in the construction of the locks on the new canals, now in course of construction on the Warrior and Tombigbee rivers in Alabama.

The Sterling Machine Works, Sterling, Ill., builders of special automatic machinery, have outgrown their present plant and will shortly move into a three-story brick building containing all modern improvements, which has just been erected for them by Moses Dillon. Several high grade machine tools have recently been installed, and the concern report enough orders on hand to keep the works running for a year.

Buildings and Bridges.

The new plant of the Wilmington Railway Spring & Mfg. Company, at Washington, Pa., was designed by Wm. B. Scalf & Sons, Pittsburgh, who will also manufacture and erect the buildings. They will be of steel frame construction, with slate roofs and corrugated iron sides.

The Nelson & Buchannan Company of Pittsburgh, contractors for the erection of iron and steel structural buildings and bridges, have dissolved partnership and gone out of business. The contract which this concern had for the building of the Tenth Street Bridge, spanning the Monongahela River between Pittsburgh and the South Side, has been turned over to the American Bridge Company, who will do the work. The bridge is to be 16 feet wide and is to cost about \$425,000.

Engines and Boilers.

Merrill-Stevens Engineering Company, Jacksonville, Fla., marine construction and repairs and boiler makers, were the first to get under temporary shelter and commence actual operations again after the conflagration of the 3d inst. They now have a permanent building up, 125 feet long, and the blacksmith department is going ahead in fine shape. Most of the machinery is now in operation. They have recently purchased another lot, adjacent to the original site, extending back into the St. John's River. Hence, when their present plans are completed, they expect to be better equipped than ever for an enlarged business. They are laying the keel for a sidewheel steamer, 135 feet long and 24 feet beam. Since the fire they have secured the contract for a light draft sternwheel passenger and freight steamer, 125 feet long, 140 feet over all, and 24 feet beam of hull.

The Alamo Mfg. Company, recently incorporated with a capital of \$25,000, have removed their gas engine plant from Angola, Ind., to Hillsdale, Mich. They are now installing new machinery and hope to have their plant in operation by the middle of June.

The Rochester Foundry & Machine Company, Rochester, N. H., manufacturers of and dealers in engines, boilers, feed pumps, &c., have purchased a plot of ground off Railroad avenue, upon which they will erect a foundry some time during the summer. Later a machine shop will be built, plans for which are not as yet completed.

The Holly Mfg. Company, Lockport, N. Y., manufacturers of high duty pumping engines, have been awarded by the city of Philadelphia the contract for three 20,000,000-gallon pumps, to be installed at Larchner's Point, on the Delaware. The contract price is \$352,985.

W. W. Whitehead Company of Davenport, Iowa, report Corliss engine sales as follows: To Deere & Mansur Company of Moline, Ill., 22 x 42 x 48 inch tandem compound condensing; to Chicago Brick Company, 24 x 48 inch condensing; to Le Roi Mining Company, Roseland, B. C., 16 x 42 inch; to Northport Mining & Smelting Company, Northport, Wash., 16 x 36 inch; Western Tube Company, Kewanee, Ill., 28 x 48 inch; Parkersburg Iron & Steel Company, Pittsburgh, Pa., 28 x 60 inch, and to South Halsted Street Iron Works, Chicago, 18 x 42 inch.

Foundries.

The Independent Novelty Company of Niles, Ohio, have just finished building a 30 x 40 foot structure, to be used as a brass foundry, and will begin at once the erection of a two-story building, 40 x 60 feet, to be used for finishing and storage room.

G. T. Glascock & Sons, Greensboro, N. C., have purchased the Piedmont Iron Works. They will continue the architectural iron work formerly done by the Piedmont works and will also do a general jobbing machine and foundry business at that place, confining their present establishment to the manufacture of stoves, hollow ware, grates, &c.

F. D. Beaupre & Co., have built a new foundry at East Concord, N. H., and are prepared to make all kinds of metal castings.

The Reliable Foundry Company, recently incorporated, have leased the foundry at Quincy, Ill., formerly occupied by the Gardner Governor Company, consisting of an iron foundry, 90 x 150 feet, and a brass foundry, 30 x 50 feet. The company will make a specialty of machine and engine castings.

The directors of the new Reading Foundry Company met at Reading, Pa., and elected: President, F. W. Ayer; vice-president, Peter D. Wanner; treasurer, John W. Storb; secretary, F. A. McDermond. Plans are being pushed forward as rapidly as possible, so that the works will resume operations in the latter part of June.

Berger Bros. Company of Columbus, Ohio, are about to erect a new boiler shop about 80 x 500 feet, with 40 feet clearance. A 50-ton traveling crane will be installed. A new foundry will also be erected, 50 x 180 feet, and of steel construction.

The William Tod Company, engineers, founders and machinists, Youngstown, Ohio, have under way a foundry 80 x 250

feet, with a crane runway extension of 100 feet, and a leanto 40 x 250 feet. The main building will be 42 feet 6 inches high, and will be equipped with three 30-ton and two 5-ton electric traveling cranes with 80 feet span. The height of the leanto will be 31 feet 6 inches, and this will be equipped with one 5-ton 38 feet span electric traveling crane, and in other respects the building will have all the modern appliances known to the trade. The steel structure was let to the American Bridge Company and the cranes to the Morgan Engineering Company of Alliance, Ohio, and Northern Engineering Works of Detroit, Mich., some months since, and are due for delivery very soon. It is intended that this building will replace the present foundry *in toto*.

Hardware.

The Keystone Woven Wire Fence Company have purchased 3½ acres in Bartonville, a suburb of Peoria, Ill., and the contract for their new plant has been let. The main building will be 80 x 240 feet, one story, and the warehouse will be 100 x 100 feet. They expect to complete the plant and occupy it by August 1. Their old site was sold to a railroad company, who needed the ground for extending their tracks.

The A. A. Wood & Sons Company, Atlanta, Ga., report that they are doing a flourishing trade in their hollow augers and spoke pointers. Some of the hardware merchants handling their tools state that users of their Universal auger have referred to it as giving results beyond expectation. Not only is the home demand good for their tools, but they are also doing considerable export business.

The W. J. Clark Company, Salem, Ohio, who make the improved hose couplings known as the Quick as Wink, advise us that the extensive use of compressed air for operating pneumatic tools and machines has largely increased their sales of Quick as Wink couplings, as they have been found to be time savers and much more convenient than the common screw coupling on air hose as well as on water, steam and chemical hose.

The Edmonds-Metzel & Cole Mfg. Company, manufacturers of light hardware specialties, have removed from 41 Olive street, Chicago, to 782 West Lake street, corner Robey. The name of the company was recently changed to the Edmonds-Metzel Mfg. Company.

Miscellaneous.

The Wheeling Tin Can Company, organized at Wheeling, W. Va., some time ago, will start work on a new plant in a few days. Connected with this new concern are George A. Laughlin, capitalist; N. E. Whitaker, president of the Whitaker Iron Company, and Alexander Glass, secretary of the Wheeling Corrugating Company, all of Wheeling.

The Harbison & Walker Company of Pittsburgh, Pa., manufacturers of fire brick, who recently bought the plant built by Johnstown capitalists at Mt. Union, Huntingdon County, Pa., have made arrangements to ask the stockholders to vote on an increase of the capital stock from \$1,000,000 to \$10,000,000. Application will be made in a few days for a charter under the laws. The stock will be divided into \$5,000,000 preferred and \$5,000,000 common, and a bond issue of \$1,500,000 will be floated. The increase in capital is made necessary by the growth of the company's business. The company have 13 plants and one in course of erection.

The stockholders of the J. C. Bartlett Company of Pittsburgh, manufacturers of furnaces, stoves and ranges, held their first regular annual meeting last week. The reports of the president and secretary were received and approved. The showing for the past year was an excellent one and the indications for the future prosperity of the company are very favorable. The J. C. Bartlett Company were organized a year ago, and are an independent concern. The works of the company are at West Newton, Pa., and are running to their full capacity. The erection of a large warehouse was authorized by the Board of Directors, who are as follows: Herman Straub, T. Frank Wolf, J. C. Bartlett, George N. Riley and A. J. Hartje. The officers elected at the meeting were J. C. Bartlett, president; Herman Straub, vice-president; Lew A. Anschutz, secretary and treasurer.

Thomas Phipps, late president of the Globe Rolling Mill Company of Cincinnati, Ohio; William Roake, secretary of the same concern, and Isaac Hardin, formerly superintendent of the Weir Frog Company, have completed arrangements with local capitalists at Hamilton, Ohio, to establish an extensive plant at the latter city for the manufacture of railroad appliances. The new company have had donated a large site at the head of Main street, and are expected to be in full operation by September 1 next. The Hamilton parties interested will be C. E. Hesser, L. P. Clawson, E. S. Griffen, J. C. and C. E. Hooven.

The Ohio Brass Company, Mansfield, Ohio, have been awarded by the Miami & Erie Canal Transportation Company the contract for all of the overhead materials for the equipment of the latter company's electric freight line, to be constructed on the bank of the canal from Cincinnati to Dayton, 67½ miles long, including three miles of siding, at \$28,000.

The Wright Machine Company, Peoria, Ill., have incorporated with a capital of \$10,000, fully paid. The company control the State of Illinois and other territory for the new Bird-sall line of engines, threshers and shredders, De Looch saw

mills, Woods Bros.' steel fenders, and sell stationary engines, boilers, &c. The officers are S. J. Wright, president; Sidney W. Wright, vice-president; J. A. Wright, secretary and treasurer.

Kimball Bros. have formed a stock company with the Omaha Electrical Works, and under the name of the Kimball Brothers' Company will continue the manufacture of passenger and freight elevators, to which they will add the manufacture of electric motors. Their works at Council Bluffs, Iowa, will be improved so that they will be better able to fill orders promptly.

The New York Central & Hudson River Railroad Company contemplate the erection of some locomotive repair shops at Oak Grove, Pa.

C. N. Mikels of New Castle, Ind., has purchased the equipment of the Star Drill Company of Rushville. A new company will be organized and under the same name the Star drill will be manufactured on a larger scale than heretofore, with plenty of capital to insure a continuation of this once large and prosperous business.

The Acetylene Machine Mfg. Company, 37 Purchase street, New Bedford, Mass., have incorporated, to manufacture acetylene gas machines of an improved type. The company are establishing a plant, putting in new machinery, and expect to be running by the latter part of June. The officers are Dr. I. Z. Normandin, president, and Asa Auger, treasurer.

The factory and warehouse of the Eaton-Ritchell Company, manufacturers of tinware, Fifteenth and Wynkoop streets, Denver, were destroyed by fire Wednesday, May 22. The damage is \$125,000, covered by insurance.

Clyde & Dyett, proprietors of the Electric Wire Works, Rome, N. Y., have completed their new buildings. The main building is 50 x 130 feet, with an addition, 18 x 50 feet, for the boiler and engine, and another addition, 7 x 20 feet, for the muffle department. The company will move into their new plant as soon as possible.

M. J. Monahan, formerly with the Vaughn Machine Company, and J. H. Robinson, formerly with the Maine Hardware Company, have formed a partnership and under the name of Monahan, Robinson & Co., will manufacture M. & R. babbit metal, at Peabody, Mass.

Woodward, Wright & Co., Limited, New Orleans, La., railroad and mill supplies, &c., have recently enlarged their steam goods department and now carry a large stock of pipe fittings, valves, &c.

A company of capitalists at Greensburg, Pa., headed by Lewis D. Castle, formerly superintendent of the Kelly & Jones Company, will organize a company with a capital of \$100,000 to manufacture brass and iron pipe fittings, couplings, &c.

The Osborn Engineering Company, Cleveland, Ohio, are preparing plans and specifications for the new plant of the Southern Car & Foundry Company, at Ensley, Ala.

The Detroit Copper & Brass Rolling Mills, Detroit, Mich., are extending their main building in order to give them a little more capacity in their brass and wire mill. Orders for such machinery as they will need have all been placed. The report that they are building a new wire mill is untrue.

The Winslow Bros. Company, 396 Carroll avenue, Chicago, have been awarded the contract for all of the solid bronze and ornamental iron work for the Frick Building, Pittsburgh. It is probably the largest contract of the kind ever placed in this country. The work to be done comprises solid bronze staircase rails, newels, elevator inclosures, bank railings, window frames and the like for the lower floor, and ornamental iron radiator casings, staircases and elevator inclosures on the upper floors, together with sidewalk lights and railings on the outside. The railings around the building will be of bronze. All the iron and bronze work of this kind, inside and outside the building, will be of the most ornate kind. They have also secured a contract for all the ornamental iron work for a \$400,000 hotel and office-building being erected at Honolulu, Hawaiian Islands, by Alexander Young. The company have just made a number of improvements in their plant, and their bronze foundry has been enlarged so as to double its former capacity, enabling them to cast a bronze statue of any size.

The American Tin Plate & Rail Brace Company, 320 Broadway, Room 1315, New York City, have incorporated with a capital of \$1,000,000, to manufacture a patented combined tin plate and rail brace. The officers are O. P. Dorman, president; J. A. Robertson, vice-president, and W. A. Lesser, secretary and treasurer.

It is announced that the American Can Company, who recently purchased the Art Metal Company and the Phoenix Art Metal Company of New Brunswick, N. J., will at once dismantle the plant of the Art Metal Company, which was a department of the Consolidated Fruit Jar Company, and remove the machinery to their Somers factory, in Brooklyn, N. Y. It is understood that the Phoenix factory will also be closed as soon as orders on hand are completed.

The Iron and Metal Trades.

The Iron trade has drifted into an attitude of expectancy which in some quarters is verging upon uneasiness. As one of the leading Iron merchants in the country puts it, the trade generally fails to realize that the rate of buying is one thing and the rate of consumption is quite another. The buying usually comes in pronounced waves, there having been such a rush this spring. The consumption, which is after all the dominating factor, is less subject to violent fluctuations, and unfortunately cannot be so quickly and so accurately gauged. The first evidence that consumers have overbought appears in the form either of protests against rapid deliveries, or of demands to delay shipments. Applying that to the present situation, the facts are that important consuming interests are rather crowding the makers, often asking for anticipation of deliveries. That, for instance, is true of the Western farm implement makers. Incidentally this shows, too, that consumers are not carrying large stocks of raw material.

Another proof of the current heavy consumption is furnished by the condition of the order books of the mills. A little incident is cited to throw light on the situation from this point of view. The story has it that one of the large works of the United States Steel Corporation was found to be oversold to the extent of 100,000 tons. The tonnage was diverted to another very large plant, which filled that one in turn to overflowing up to November 1.

The Wire trade offers another illustration. The leading interest took in during the current month only a trifle less of new business than it did in April, which was a very heavy month, while the specifications during May have been as heavy.

The Steel Rail manufacturers have accepted orders during the current fiscal year aggregating 2,600,000 tons, exclusive of seconds, that being by far the greatest year in the trade. It must be understood, of course, that this total represents all the orders booked for delivery during the year beginning October 1, 1900. A large part of this tonnage has, of course, been delivered, but it is quite clear that the mills will be forced to keep running at top speed to fill their orders, if in fact they are at all able to do so.

Under the circumstances a prolonged lull in buying should cause no uneasiness, because evidently the heavy consumption is going on right along. Yet it is idle to deny that buyers are acting conservatively, and the amount of new business is not large in any line, from the Pig Iron to the Finished Material.

The export trade is very dull in all branches of the heavy Iron trade.

A Comparison of Prices.

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type.
Declines in Italics.

	May 29, 1901.	May 22, 1901.	May 1, 1901.	May 30, 1900.
PIG IRON:				
Foundry Pig, No. 2, Standard, Philadelphia ..	\$15.00	\$15.00	\$15.25	\$20.00
Foundry Pig, No. 2, Southern, Cincinnati.....	13.75	13.75	14.00	19.75
Foundry Pig, No. 2, Local, Chicago	15.50	15.50	15.50	21.50
Bessemer Pig, Pittsburgh.....	16.00	16.25	16.75	nom.
Gray Forge, Pittsburgh.....	14.25	14.75	14.50	18.50
Lake Superior Charcoal, Chicago..	17.00	17.50	18.00	24.50
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh (nom)....	24.00	24.00	24.00	28.00
Steel Billets, Philadelphia (nom) ..	26.25	26.00	26.25	31.50
Steel Billets, Chicago, (nom).....	.....	.....	26.00	.....
Wire Rods (delivered).....	39.00	39.00	38.00	nom.
Steel Rails, Heavy, Eastern Mill..	28.00	28.00	28.00	35.00
Spikes, Tidewater.....	1.80	1.80	1.80	2.25
Splice Bars, Tidewater.....	1.40	1.40	1.40	2.20
OLD MATERIAL:				
O. Steel Rails, Chicago, gross ton.	13.00	13.50	14.50	13.00
O. Steel Rails, Philadelphia	16.00	16.25	16.75	19.00
O. Iron Rails, Chicago, gross ton .	18.50	19.00	20.00	18.00
O. Iron Rails, Philadelphia.....	19.50	19.50	19.50	20.00
O. Car Wheels, Chicago, gross ton.	16.50	16.50	16.50	24.00
O. Car Wheels, Philadelphia.....	17.50	17.50	17.50	20.00
Heavy Steel Scrap, Chicago, g. ton	13.00	13.50	14.00	13.00
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia...	1.55	1.50	1.50	1.70
Common Iron Bars, Chicago.....	1.65	1.55	1.60	1.95
Common Iron Bars, Youngstown..	1.65	1.45	1.50	1.90
Steel Bars, Tidewater.....	1.62½	1.62½	1.62½	1.90
Steel Bars, Pittsburgh	1.40	1.40	1.40	1.80
Tank Plates, Tidewater.....	1.80	1.80	1.70	1.65
Tank Plates, Pittsburgh.....	1.60	1.60	1.50	1.65
Beams, Tidewater.....	1.75	1.75	1.75	2.40
Beams, Pittsburgh	1.60	1.60	1.60	2.25
Angles, Tidewater	1.75	1.75	1.75	2.40
Angles, Pittsburgh.....	1.60	1.60	1.60	2.35
Skelp, Grooved Iron, Pittsburgh..	1.75	1.75	1.75	1.67½
Skelp, Sheared Iron, Pittsburgh .	1.80	1.80	1.85	1.70
Sheets, No. 27, Pittsburgh.....	3.30	3.30	3.30	3.15
Barb Wire, f.o.b. Pittsburgh.....	2.90	2.90	2.90	2.80
Wire Nails, f.o.b. Pittsburgh.....	2.30	2.30	2.30	2.30
Cut Nails, Mill.....	2.00	2.00	2.00	2.05
METALS:				
Copper, New York.....	17.00	17.00	17.00	16.50
Spelter, St. Louis	3.77½	3.80	3.82½	4.37½
Lead, New York	4.37½	4.37½	4.37½	4.00
Lead, St. Louis.....	4.25	4.22½	4.20	3.95
Tin, New York.....	28.35	27.50	25.87	30.25
Antimony, Hallett, New York....	8.75	8.75	8.75	9.75
Nickel, New York.....	60.00	60.00	55.00	55.00
Tin Plate, Domestic Bessemer, 100 lbs., New York	4.19	4.19	4.19	4.84

Chicago.

1205 FISHER BUILDING, May 20, 1901.—(By Telegraph.)

The weakness in Foundry Pig Iron is the special feature of the market. Thus far it appears not to have affected any other branch of the trade; the volume of business continues large in Bar Iron and specifications are being freely received on contracts in all other lines. A noteworthy feature is the scarcity of some classes of products. Steel Billets are in no better supply, and small sizes of Bars, all kinds of Sheets, Tin Plate and Wire products are still in short supply, the manufacturers being considerably in arrears on deliveries.

Pig Iron.—The weakness in Foundry Pig Iron is alleged to be primarily due to the efforts made to dispose of surplus production of a company ordinarily classed as a Southern company, although not strictly in that category. It is claimed that the actual Southern furnace companies have plenty of business booked and would not have been disposed to make such sharp reductions in prices as have recently been current. The downward tendency, however, has to some extent affected all grades and varieties of Pig Iron, but manufacturers claim that it will only be temporary. The business of the past week has been light. Only one order of 1000 tons has transpired and a few transactions of 200 or 300 tons are reported. The demand for carload lots is much below the average. Quotations have been revised to meet existing conditions. We quote as follows:

Lake Superior Charcoal.....	\$17.00 to \$17.50
Local Coke Foundry, No. 1.....	15.50 to 16.00
Local Coke Foundry, No. 2.....	15.00 to 15.50
Local Coke Foundry, No. 3.....	14.50 to 15.00
Local Scotch, No. 1.....	15.75 to 16.25
Ohio Strong Softeners, No. 1.....	16.50 to 16.75
Southern Silvery, according to Silicon.....	15.15 to 15.40
Southern Coke, No. 1.....	14.90 to 15.15
Southern Coke, No. 2.....	14.40 to 14.65
Southern Coke, No. 3.....	13.90 to 14.15
Southern Coke, No. 1 Soft.....	14.90 to 15.15
Southern Coke, No. 2 Soft.....	14.40 to 14.65
Foundry Forge.....	13.40 to 13.65
Gray Forge and Mottled.....	13.40 to 13.65
Southern Charcoal Softeners, according to Silicon.....	15.00 to 16.50
Tennessee Silicon Pig.....	16.00 to 17.00
Alabama and Georgia Car Wheel.....	20.15 to 20.65
Malleable Bessemer.....	16.25 to 16.50
Standard Bessemer.....	18.00 to 18.50
Jackson County and Kentucky Silvery, 8 per cent. Silicon.....	15.75 to 16.75

Bars.—Numerous orders have been placed, particularly for Bar Iron. These orders are largely coming from railroad companies, car builders and wagon makers, but a few more implement manufacturers have negotiated season contracts. The volume of business is consequently well up to that for the past few weeks. A strong demand is still experienced for prompt shipments, and quite a scarcity has developed in small Angles and other shapes rolled on small mills. The sales of Steel Bars have not been so heavy as Bar Iron, but this is perhaps due to the fact that the Steel mills are crowded with work and the scarcity of Billets prevents the taking on of much new business. Mill shipments are quoted at 1.55c. to 1.60c., Chicago, for Common Iron, 1.60c. to 1.65c. for Soft Steel Bars, and 2c., base, for Hoops. The jobbing trade continues to enjoy the activity which has so long characterized this branch of business. Small lots from stock are held at 1.90c. to 2c. for either Iron or Steel Bars, and 2.20c. to 2.25c., base, for Hoops.

Structural Material.—Current trade is confined to small lots, which are fairly numerous. No new contracts of any importance have recently been made, except one of 600 tons placed by a Mississippi River boat yard. Mill shipments are quoted as follows: Beams, Channels and Zees, 15 inches and under, 1.75c.; 18 inches and over, 1.85c.; Angles, 1.75c. rates; Tees, 1.80c.; Universal Plates, 1.75c. to 1.85c.; small lots of Beams and Channels from local yards are quoted at 2.25c.; Angles, 2c. rates; Tees, 2.15c.

Plates.—The local mill is being pressed for deliveries on specifications. New business is rather light, but these works have orders which will cover their capacity far into the fall. Most of the local jobbers are enjoying a very good demand for shipments from stock. Mill shipments are quoted as follows: Tank Plate, ¼-inch and heavier, 1.75c. to 1.80c., Chicago; Flange, 1.85c.; Marine, 1.95c. Jobbers are selling small lots from store at 1.90c. to 2c. for Tank and 2.25c. for Flange, with the usual extras for heads, segments, lighter gauges, &c.

Sheets.—A brief interval of comparative quiet was followed by a resumption of pressure on manufacturers. The demand for both Black and Galvanized Sheets is again very heavy. Jobbers are not now disposed to make any concessions in prices, as their stocks are growing lighter as a result of protracted heavy demand for quick shipments from the local warehouses. Small lots of No. 27 Black Sheets from stock are quoted at 3.40c. to 3.50c. and Galvanized 70 off.

Merchant Pipe.—The volume of business shows no diminution. Manufacturers' prices, random lengths, are as follows:

	In carloads.	Less than carloads.
	Bik. Galvd.	Bik. Galvd.
¼ to ½ inch and 11 to 12 inches.....	59.2	46.2 54.9 40.9
¾ to 10 inches.....	66.7	53.3 61.9 49.0

Boiler Tubes.—Prices and demand are unchanged. Quotations on less than carload lots from jobbers' stocks are as follows:

	Steel.	Iron.
	50	40
1 to 2½ inches.....	57½	47½
2½ to 5 inches.....	50 and 5	47½
6 inches and larger.....		

Rails and Track Supplies.—No sales of heavy sections are reported, but inquiries for a good tonnage are being received for shipment in November and December. Eastern mills are likely to be the recipients of some business of this character, owing to the crowded condition

of Western works. Some railroad companies have begun to make inquiries for deliveries next year, but manufacturers will not yet name prices. Light Rails are in good demand, and more could be sold if the mills were able to make the desired delivery. Prices are held at \$28 to \$33, according to section. Track Fastenings are in as strong demand as before; most large makers of Fastenings are out of the market. Quotations are as follows: Splice Bars, 1.75c. to 1.80c.; Spikes, 1.95c. to 2c.; Track Bolts, with Hexagon Nuts, 2.80c.; with Square Nuts, 2.65c.

Billets.—A constant demand is experienced for small quantities of Steel Billets. Large lots of Open Hearth Billets are quoted at \$32.80, but 8 and 10 inch Forging Bessemer Billets have, however, been sold at \$35 in carload lots for delivery in 30 to 60 days. Consumers are not only paying this price, but are glad to get the desired material.

Merchant Steel.—A few more implement contracts for Steel specialties have been placed during the week and inquiries are coming forward from other concerns in this line. The general demand continues quite fair. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2c. to 2.10c.; Smooth Finished Tire, 1.85c. to 2c.; Open Hearth Spring Steel, 2.30c. to 2.40c.; Toe Calk, 2.40c. to 2.60c.; Sleigh Shoe, 1.85c. to 1.90c.; Cutter Shoe, 2.40c. to 2.60c.; Cold Rolled Shafting, 55 off. Ordinary grades of Crucible Tool Steel are quoted at 6c. for carloads and 7c. from store; Specials, 13c. upward.

Old Material.—Considerably more business is doing, but at lower prices. Iron Rails are coming out more freely, quite a number of transactions being reported. The sales, however, are usually being made by railroad companies direct to consumers. Holders of Old Material generally have been endeavoring to move more of their accumulations. The market is therefore quite weak. The following are approximate quotations per gross ton:

Old Iron Rails.....	\$18.50 to \$19.50
Old Steel Rails, mixed lengths.....	13.00 to 13.50
Old Steel Rails, long lengths.....	15.00 to 15.50
Heavy Relaying Rails.....	21.00 to 22.00
Old Car Wheels.....	16.50 to 17.00
Heavy Melting Steel Scrap.....	13.00 to 13.50
Mixed Steel.....	11.00 to 11.50

The following quotations are per net ton:

Iron Fish Plates.....	\$16.00 to \$16.50
Iron Car Axles.....	19.00 to 19.50
Steel Car Axles.....	15.50 to 16.00
No. 1 Railroad Wrought.....	14.00 to 14.50
No. 2 Railroad Wrought.....	12.00 to 12.50
Shafting.....	15.50 to 16.00
No. 1 Dealers' Forge.....	12.00 to 12.50
No. 1 Busheling and Wrought Pipe.....	10.50 to 11.00
Iron Axle Turnings.....	9.50 to 10.00
Soft Steel Axle Turnings.....	9.00 to 9.50
Machine Shop Turnings.....	8.50 to 9.00
Cast Borings.....	4.00 to 4.25
Mixed Borings, &c.....	4.50 to 5.00
No. 1 BOLLERS, cut.....	11.50 to 12.00
No. 2 BOLLERS, cut.....	9.50 to 10.00
Heavy Cast Scrap.....	11.00 to 11.50
Stove Plate and Light Cast Scrap.....	8.50 to 9.00
Railroad Malleable.....	11.50 to 12.00
Agricultural Malleable.....	10.50 to 11.00

Metals.—Quotations on Pig Lead are unchanged at 4.32½c. for Desilverized and 4.42½c. for Corroding in 50-ton lots. Copper is also steady at 17½c. for carload lots of Lake and 17¼c. for Casting brands.

Coke.—While the demand for Coke is excellent, the supply is ample and prices are consequently not so firmly held as before, except on the highest grade of Connellsville Coke. Quotations are \$4.50 to \$5 for 72-hour Foundry Coke.

C. G. Stevens has been appointed agent in Chicago and district of Hobson, Houghton & Co., Don Steel Works, Sheffield, manufacturers of Hobson's "Choice" Crucible Steel. He is located at 60 South Canal street, where a large stock of Steel will be carried.

The enlargement of the American Sheet Steel Company's works at Vandergrift, Pa., will increase the capacity of that plant by 32,000 tons annually. The six mills built at Chester, Pa., but never operated, are now being removed to Vandergrift, and eight more mills are being erected there. The main mill building is to be removed from Chester to Wellsville, Ohio, to replace the old building of the company's plant in that town.

Philadelphia.

FORREST BUILDING, May 28, 1901.

We have again to give a report of the Iron trade which must necessarily be almost a repetition of those given during the past several weeks. In one sense of the word business is almost dead; yet there is no decrease in activity, so far as regards the call for deliveries on contracts made some time ago. Some new business is being done, but of a character which signifies nothing more than a filling in of the open spaces. There is a degree of uncertainty in regard to the last half of the year, however, which is inimical to purchases on a large scale, not because there is anything positively unfavorable in sight, but there are uncertainties and contingencies which may become important factors, and until these are eliminated purchases will no doubt be restricted to somewhat small proportions. The labor question appears to be in a fair way for settlement, but until the Amalgamated scale is disposed of it is impossible to avoid some feeling of apprehension. Apart from this everything looks favorable, so that, to use a common expression, the market may be said to be waiting for further developments.

Pig Iron.—There is no recovery from the dullness which has been mentioned in all our recent reports. Prices are steadier, however, and \$15 for No. 2 X appears to be an inside figure, \$15.25 to \$15.50 being a more usual quotation. Furnaces are so bare of stock and so well sold ahead that a temporary cessation of buying has no appreciable effect on prices, although bids for good sized lots for deliveries during the last half of the year would be carefully considered and an effort made to effect sales. There are a good many inquiries, but as they have not developed into actual business, it creates the impression that buyers are simply feeling the market so as to aid them in coming to a decision in the near future. Appearances do not indicate that prices will change much, if at all, unless some trouble should occur which at present is unforeseen. Under this impression trading is of a hand to mouth character, and has no significance beyond the fact that neither side is prepared to relinquish the position which they have maintained for some time past. Prices are practically about as they were a week ago, and may be quoted as follows for seaboard or nearby deliveries: No. 1 X Foundry, \$16 to \$16.25; No. 2 X Foundry, \$15.25 to \$15.50; No. 2 Plain, \$14.75 to \$15; Standard Gray Forge, \$14.25 to \$14.50; Ordinary Gray Forge, \$14; Basic (Chilled), \$14.25 to \$14.50.

Billets.—There is very little demand at the present time, buyers hoping to get somewhat better terms than have yet been offered. The offerings are light, however, and the tendency is somewhat in the direction of higher figures, \$26.50 to \$27 being the asking prices, to which there is little or no response.

Plates.—Business is reported to be somewhat less active, but a pretty large tonnage appears to be entered week by week, in spite of all that can be said to the contrary. The demand is mainly for small and medium sized lots, for which there is a very active call. Large orders are in abeyance for the present, but it is expected that a renewal of the demand will be met in the near future. Meanwhile prices are steady as last quoted—viz.: Plates, $\frac{1}{4}$ inch and thicker, 1.80c. to 1.85c.; Universals, 1.80c. to 1.85c.; Flange, 1.90c. to 2.10c.

Structural Material.—There is no new feature in this department, back orders being sufficient to keep the mills actively employed. Some new business is coming in, but the tonnage is not particularly heavy, although new work is in prospect, which is expected to perpetuate the activity of the past several months. Prices remain as last quoted for seaboard or nearby deliveries: Angles, 1.75c. to 1.85c.; Beams and Channels, 15-inch and upward, 1.75c. to 1.85c.

Bars.—There is quite a good demand, and work at all the mills seems to keep them fully occupied. The new arrangement in regard to prices is working satisfactorily, and 1.45c., base, Pittsburgh, plus freight to point of delivery, is a firm quotation, which is equivalent to

saying 1.55c. to 1.65c., seaboard and nearby points. Steel Bars, 1.62 $\frac{1}{2}$ c. to 1.70c., delivered.

Sheets.—The demand is as urgent as ever, and mills find themselves quite unable to meet the full requirements of buyers. Prices continue within the following range for best Sheets (common Sheets two-tenths less): No. 10, 2.50c.; No. 14, 2.70c.; No. 16, 2.90c.; Nos. 18-23, 3.40c.; Nos. 21-24, 3.50c.; Nos. 26, 27, 3.65c.; No. 28, 3.75c. to 3.80c.

Old Material.—The market is extremely dull, and although it is difficult to get prices very much lower, yet in most cases some concession is necessary before business can be secured. Bids and offers are about as follows for deliveries in buyers' yards: Choice Railroad Scrap, \$19 to \$20; Country Scrap, \$16 to \$17; No. 2 Light Scrap, \$12.50 to \$13.25; Machinery Cast, \$14 to \$14.50; Heavy Steel Scrap, \$16 to \$16.50; Old Iron Rails, \$19.50 to \$20; Old Steel Rails, \$16 to \$16.25; Wrought Turnings, \$12 to \$12.50; Cast Borings, \$8.75 to \$9; Old Car Wheels, \$17.50 to \$18; Iron Axles, \$21.50 to \$22.50; Steel Axles, \$17 to \$18.

Birmingham.

BIRMINGHAM, ALA., May 27, 1901.

The Iron market the past week continues to show a dullness that of late has been monotonous. Inquiries were limited and business was restricted to very narrow limits. There is the same irregularity in quotations, of which previous mention has been made. Some are holding prices on the basis of \$11 to \$11.25 for No. 2 Foundry and registered orders at these prices. But they are in a very comfortable condition, and are not inclined to make concessions. They are simply drifting. Buyers seem to be waiting further developments before placing orders of moment. It looks as if some prices had been made below \$11 for No. 2 Foundry, but direct evidence is not obtainable, as no one will admit any such sales. No. 3 Foundry is quoted at \$10.50 to \$10.75, and Gray Forge at \$10 to \$10.25, but there were reports of sales below \$10. Of one thing there can be no doubt, and that is that the business is very small, and the market is admitted to be weak by all sides. While this is true of Pig Iron, the demand for Steel is fine, and there is no difficulty in securing all the business that can be comfortably cared for. The run of business is on the basis of \$23 for Billets. It is announced in the public press that preliminary plans are on foot looking to the enlargement of the mill to a capacity double that it has at present. While it is only a matter of time when this will occur it cannot be officially confirmed at present. But the business has developed so rapidly and so satisfactorily that enlargement must follow to keep pace with it. Mention was made last week of a large Coal contract with the Mexican Central Railroad. Following close on its heels comes the announcement by the Louisville & Nashville Railroad of a rate of freight on Coal to New Orleans which is the lowest ever made from here, it being \$1.25 per ton. To Pensacola and Mobile the rate has been reduced to \$1.10. The former rate to all three cities was \$1.75. The reduction was forced by the interest being manifested in the lately discovered Texas oil fields, and the formation of companies with ample capital to pipe the oil to the seaboard cities and compete with Coal as a fuel. The old freight left no chance for Coal to be a winner in the competition, and the Coal interests of the district were seriously threatened. The reduction in rates certainly puts this district on a footing better than Pittsburgh. The use of the fuel oil is in its infancy as yet, and experience and time only will prove its worth. As it is, the operators of small Coal properties have had of late a hard time in finding a sale for their output, and contracts were either declined or surrounded with such conditions as to make them uncertain of fulfillment. The situation is, in this respect, anything but cheerful. The larger operators are better placed, as they can turn their Coal into Coke.

It is now given out that actual work on the Southern Car & Foundry Company's shops will begin within the next 30 days. The plans are nearing completion. The

ground for the various buildings has been staked off, and grading will begin at once. Out of the 60 acres acquired by the plant, they will utilize but 40 acres at the beginning. The most modern machinery and appliances suitable will alone be used in equipping the plant. The Structural Steel required will be furnished by the Tennessee Company. When in full operation the employees will number 1000, and the monthly pay roll will amount to \$60,000. The capacity will be 20 cars per day.

Every enterprise in our industrial interests seems to be prospering. Enlargements in some cases and in others brand new buildings indicate the prosperity that is with us. We are reaching out all the time. The Texas oil interests are sending us a good business and it is probable that some large contracts will be secured from some of the pipe lines originating there. A large amount of money is being expended by the municipality and fresh schemes that will also require large expenditures of money are being constantly broached. At present rival street car companies are competing for the franchise covering valuable unoccupied street territory.

Cleveland.

CLEVELAND, OHIO, May 28, 1901.

Iron Ore.—It may be said that the movement of Iron Ore down the lakes for the present season has just started. There have been shipments before this time and a good sized block of material has been received at the lower lake docks, but the Pittsburgh Steamship Company did not get all of their boats started out until Monday of this week. As most of the largest shippers are sending their Ores through the channel of the United States Steel Corporation, and as this fleet represents that organization on the lakes, it may be said with impunity that the chief movement of Ore did not begin until these boats were started. This week the freights, both contract and wild, have been established upon what seems now a permanent basis. The shippers and the owners, in trying to readjust the market to the new conditions, brought about by the strike of the engineers and the long delay by ice blockades, found some difficulty in coming to an understanding. The shippers, especially the United States Steel Corporation, made a strong effort to bring the contract price down to 70c. from Duluth, with other ports graded on that figure, but the vessel interests stood firmly out against such overtures, with the result that a compromise was effected. The owners had been asking 80c., which was the price fixed earlier in the season, but this week a compromise was effected on a basis of 75c. from Duluth, which rate seems now firmly established for the short season, extending to October 15. For the full season nothing better than 80c. has been done. The going rate has been holding steady at 80c. from Duluth. If the owners succeed in keeping the boats scattered rates may be held up, as the demand for tonnage is heavy.

Pig Iron.—The market is showing some activity in the Foundry and Basic grades for the third quarter, with a little business done now and then for the fourth quarter. This activity, small though it is, is eclipsing the transactions for the month of June, although there have been some sales made for deliveries during that period. Small quantities of Basic have been sold this week on a basis of \$14.25, Valley Furnace, most of the material being sent to Pittsburgh, although Cleveland received a portion of it. The price is low, probably a little below the market, but the only sales made have been on that basis. The sales of Basic for the third quarter are now being made freely on a basis of \$15, and one or two of the furnaces report that they have sold up to the end of that time. About all of the producers are declining to enter contracts which require deliveries during the fourth quarter. Sales of Foundry grades for immediate delivery are on the basis of \$14.50 for No. 1, and \$14 for No. 2. These are not heavy, because of a lack of material. Sales of Foundry for delivery during the third quarter are made sparingly upon the same basis. No Bessemer

has been sold for delivery beyond July 1, as far as can be learned. The inquiries so far have not indicated any vast amount of business in sight, although all believe that it will come out later. The furnacemen would be willing to make sales on the basis at which present transactions are recorded—viz., \$15 at the Valley furnaces.

Finished Material.—Very few, if any, new orders are coming in for Finished Material, and the activity of the plants depends entirely upon the disposition of those who entered into contracts earlier in the year. Naturally the situation in this respect varies widely, some companies failing to obtain specifications on former orders, while others are unable to meet the demands. It is quite evident that all of the material sold following the boom early in April is not to be used immediately, and this may have some effect upon the market after July 1. Some of those who entered contracts are now applying orders vigorously, hoping to have all the material delivered, where this is possible, before July 1, the intention being to place the surplus in stock. Others who are not able to do this will default in their contracts, and it is evident that quite a good bit of tonnage is to be lost in this way. As a result some of the mills are looking for orders, while others are in a tight place, being unable to make deliveries within 60 to 90 days on certain grades. Other mills are willing to take about any kind of an order that the market might afford. In Steel Plates the market conditions do not vary greatly. Heavy orders earlier have taken up the mill capacity for some time in the future, and although no ship orders are in sight and the immediate demand is not heavy except from the car companies, the producers are not worrying as yet. The price remains firm at 1.70c. without prospect of a change. Structural Material is active, as far as specifications on former orders are concerned, although new business is backward. The outlook for the latter part of the year at this time is not altogether encouraging, although some orders do not call for deliveries until well on into the second half. The prices on all grades hold firm at 1.70c. Small Angles are hard to obtain because the supply is short. Small sales of Rails have been made to electric lines this week at \$28, the price recently established. The mills are not in shape to take much tonnage, because of heavy movements on former orders. Bars are moving quietly at 1.45c., Pittsburgh, with a fair demand. Billets are in better demand, and the supply, which was improved a week ago, seems to be getting a little shorter than it was. The new price of \$24 prevails generally now, and the amount of material requested is keeping the market steady at that figure.

Old Irons.—There is a deadlock between the purchasers and the dealers on the prices of Scrap, and as a result little or nothing is being done, aside from filling orders placed some time ago. Most of the dealers have sold short, expecting the prices to drop, and are finding it difficult to obtain material with which to meet their requirements except at the top prices. The general tendency of the market is downward, but the desire to pinch the dealers is causing those who have the material to keep their prices up. It would be difficult to quote a scale of prices that would represent the market.

Cincinnati.

FIFTH AND MAIN STS., May 29, 1901.—(By Telegraph.)

No information which can be gathered here at this writing leads to the conclusion that the situation has changed during the past week. Trading has been confined exclusively to small lots and there is but little interest manifested in the entire Pig Iron market. The outlook is for a continuance of the present dullness. In regard to prices the situation is certainly unchanged. The minimum prices herewith are none too low to represent values, and while none are openly offering to cut that schedule yet there is a feeling that lower prices would be brought out by interest manifested on the

part of buyers. It is hard to assign any definite part of the quietness in Pig Iron to the machinists' strike at the present time. The cessation in activity is mainly attributable to the customary lull after the buying movement of a month ago. Freight rate from Birmingham is \$2.75 to this point; from Hanging Rock district, \$1. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1.....	\$14.25 to \$14.75
Southern Coke, No. 2.....	13.75 to 14.25
Southern Coke, No. 3.....	13.25 to 13.75
Southern Coke, No. 4.....	12.25 to 13.00
Southern Coke, No. 1 Soft.....	14.25 to 14.75
Southern Coke, No. 2 Soft.....	13.75 to 14.25
Southern Coke, Gray Forge.....	12.25 to 12.50
Southern Coke, Mottled.....	12.25 to 12.50
Ohio Silvery, No. 1.....	15.50 to 16.00
Ohio Silvery, No. 2.....	14.50 to 15.00
Lake Superior Coke, No. 1.....	15.50 to 15.75
Lake Superior Coke, No. 2.....	15.00 to 15.25
Lake Superior Coke, No. 3.....	14.50 to 14.75
Southern Basic.....	14.00 to 14.75

Car Wheel and Malleable Irons.

Standard Southern Car Wheel, chilling grades.....	\$18.25 to \$18.75
Standard Southern Car Wheel, No. 2.....	17.25 to 17.75
Lake Superior Car Wheel and Malleable.....	18.50 to 19.00

Plates and Bars.—The market is comparatively quiet and prices are unchanged. The market does not appear any stronger. We quote, f.o.b. Cincinnati: Iron Bars, in carload lots, 1.60c., with half extras; same in small lots, 1.80c., with full extras; Steel Bars, in carload lots, 1.15c., with half extras; Base Angles, in carload lots, 1.80c.; Plates, ¼-inch and heavier, 1.80c.; Sheets, No. 16, 2.50c.

Old Material.—There is no change reported and business has been quiet. We quote dealers' buying prices, f.o.b. Cincinnati, as follows: No. 1 Wrought Railroad Scrap, per net ton, \$16; Cast Railroad Machine Scrap, \$12.25 to \$12.75; Iron Axles, \$18.75 to \$19; Iron Rails, \$16.75 to \$17.25; Steel Rails, rolling mill lengths, \$14.75 to \$15.25; short lengths, \$13.75 to \$14; Car Wheels, \$15.75 to \$16.25. All prices except No. 1 Wrought on the basis of gross tons.

Pittsburgh.

HAMILTON BUILDING, May 29, 1901.—(By Telegraph.)

Pig Iron.—There is very little Pig Iron moving and the market is weaker. Standard Bessemer Iron has sold in small lots at \$15.50, Valley furnace, or \$16.25, Pittsburgh. If any large tonnage were offering there is no doubt but that \$15.25 at Valley furnace, or perhaps \$15, could be done. The Bessemer Furnace Association held a meeting in Cleveland last week and the situation was gone over carefully. It is claimed that the amount of Pig Iron available in the second half of the year, including Bessemer, Gray Forge and Foundry, does not amount to 300,000 tons. It is expected that the United States Steel Corporation and other large Steel interests will need approximately this amount of Iron to fill out their requirements. If this is true, the situation in Pittsburgh for Iron for the second half can be regarded as very strong. Forge Iron has been strong at \$14, Valley furnace, but has sold down to \$13.50, the market being considerably weaker. Foundry Iron is also lower in price. We quote: Standard Bessemer Iron, \$15.25 to \$15.50, Valley furnace, or \$16 to \$16.25, f.o.b. Pittsburgh; Gray Forge, \$13.50 to \$13.75, Valley, or \$14.25 to \$14.50, Pittsburgh. No. 1 Foundry Iron is \$15.25 to \$15.50; No. 2, \$14.75 to \$15; No. 3, \$14.25 to \$14.50, all f.o.b. Pittsburgh.

Billets.—Steel continues very scarce and a local mill are buying Open Hearth Blooms from a Valley mill to help them out on their contracts. Small lots of Bessemer Billets are being sold at \$24 to \$25, delivered Pittsburgh. There is a great scarcity of small Billets and of Basic Open Hearth Billets, and premiums of \$1 to \$2 a ton are being paid for prompt deliveries. Sheet Bars are from \$25 to \$27, depending on deliveries wanted by the customer. Basic Open Hearth Billets range from \$25 to \$28 a ton, depending on carbons and deliveries.

Muck Bars.—The market is slightly weak, and we quote standard grades at \$27 to \$27.25, Pittsburgh.

(By Mail.)

In certain lines of Finished Material there is a good demand, more especially in Tubular Goods and Sheets,

but aside from this the market is extremely quiet. There is practically no Pig Iron selling at all, and Foundry Iron in the past week or so has declined from 25c. to 50c. a ton, Standard Northern No. 2 having sold in this market at \$14.75 delivered. In Billets there is a good demand, but mostly for small lots, which bring from \$24 to \$25 for Bessemer. In Structural Material the big jobs for this year have mostly all been placed, but the mills are full of work and will be for months ahead. Plates, Bars, Skelp and Scrap are very quiet; as yet there is no weakness in prices, with the possible exception that on some lines and on second half delivery some shading might be done. The mills are so well filled up on old contracts, specifications for which are coming in very freely, that so far there is no pressure to sell. On the other hand, buyers are pretty well loaded up with stuff, and being confident that prices will be no higher, are either not buying at all or else in small lots. In view of the uncertainty as to the cost of labor in mills controlled by the Amalgamated Association for second half, and also as to whether present price of \$24 on Billets will be held, small finishing mills that sign the scale and have to buy Steel are not willing to sell until these uncertainties have been removed. The situation, therefore, is likely to be quiet until July 1 or later. Some very heavy contracts for Iron work have recently been placed, some of this going to Riter-Conley Mfg. Company of this city. Hurry up orders for oil tanks and oil well supplies for the new oil fields in Texas have resulted in thousands of tons of material being sent from Pittsburgh to the new oil fields. Some very large buildings are being figured on to go up in this city, work on which may be started in the fall, and which will require a large tonnage in structural shapes. Building operations in Pittsburgh are certainly as active as in any other city in the country, many of the downtown buildings being razed to make room for new and modern structures.

Ferromanganese.—There is very little doing in Ferro, most of the consumers being covered by contracts. We may note a sale of about 25 tons of domestic 80 per cent. Ferro at \$58.50, delivered at buyer's works.

Plates.—The demand for Plates has fallen off very materially, but as most of the mills are filled up for the next 60 to 90 days there has been no pressure to sell. The Pressed Steel Car Company are taking from the leading Plate interest more than 1000 tons a day. We are advised that prices as fixed by the Plate Mills Association are being firmly held by the mills composing it. There is no change in prices and we quote: Tank quality, ¼-inch and heavier, 1.60c.; 3-16 inch, 1.65c.; under 3-16 inch and above No. 10, 1.70c.; Flange or Boiler Steel, 0.1c. advance over the base of Tank; Marine and Fire Box, American Boiler Manufacturers' Association specifications, 0.2c. advance over Tank; Still Bottom Steel, 0.3c. advance over Tank; Locomotive Fire Box Steel and equivalent specifications, 0.5c. advance over Tank, all f.o.b. Pittsburgh.

Steel Rails.—No large lots are being placed, but there is a good deal of difficulty in getting mills to accept small lots for anything like prompt shipment, on account of their being so crowded. We quote Standard Sections at \$28, at mill.

Structural Material.—Both of the local structural mills are crowded with work, and will be for some months. An occasional building is being placed, but most of the large work is in. Plans are being prepared for several large office structures to be erected in Pittsburgh, and work on these may be started this year. We quote: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6 inch, 1.60c.; smaller sizes, 1.55c. to 1.60c.; Zees, 1.60c.; Tees, 1.65c.; Steel Bars, 1.40c. to 1.50c., half extras, at mill; Universal and Sheared Plates, 1.60c. All above prices are f.o.b. Pittsburgh.

Sheets.—A good deal of new business in Sheets is being placed, but tonnage is not as heavy as some time since. The mills are very firm as to their idea of prices of Sheets for second half delivery, and are not disposed to make concessions to secure tonnage. The American

Sheet Steel Company are moving several Sheet mills to Vandergrift, Pa. We quote: No. 27 Black Sheets, box annealed, at 3.20c. to 3.25c.; No. 28, 3.3¹/₂c. to 3.35c. The demand for Galvanized Sheets is larger than for Black and prices are firm. We quote 70 and 5 per cent. off in carload lots, and 70 and 10 in large lot, f.o.b. maker's mill.

Bars.—There has been a falling off in demand for Steel Bars, but this will be welcomed by the mills, as it will give them a chance to catch up on back orders. We are advised that prices on Steel Bars, fixed by agreement some time since, are being rigidly held. We quote Steel Bars at 1.40c., at mill, half extras. On Open Hearth Steel Bars \$2 a ton advance is charged and also extras on high carbons. All prices on Steel Bars are f.o.b. Pittsburgh, with freight added. We quote Common Iron Bars at 1.45c. to 1.50c., half extras, at Valley mill. We quote Hoops at 1.90c., base, for large lots and 2c. in small lots. Bands up to 12 gauge are sold on the Steel Bar card, and we quote at 1.40c. to 1.45c., depending on the order.

Merchant Steel.—There is a fair demand with no change in prices. The mills are very busy, but mostly on old contracts. Implement makers are placing some orders, with specifications on old contracts coming forward very freely. We quote: Tire Steel, 1.60c.; Toe Calk, 1.85c.; Open Hearth Spring, 2c.; Plow Slabs, 2c.; Tool Steel, 7c. and upward, depending on quality. On Tool Steel freight is allowed.

Skelp.—Market on Skelp is firm and the mills are filled up for the next two or three months. We note a sale of about 500 tons of Grooved Iron Skelp at 1.80c., at maker's mill. We quote Grooved Iron and Steel Skelp at 1.75c. to 1.80c., and Sheared at 1.80c. to 1.85c., at maker's mill.

Tubular Goods.—The Pipe mills are all well filled up and some sizes are scarce and hard to get for prompt shipment. A very heavy tonnage of oil well supplies of all kinds continues to be sent from this district to the Texas oil fields. Prices are firm and there is less cutting than for a long time. Prices to the small trade, in less than carload lots, are as follows:

Merchant Pipe.			
	Per cent. Black.	Per cent. Galvd.	
1/4 to 1/2 inch and 11 to 12 inch.....	61	48	
3/4 to 10 inch.....	68 1/2	56	
Casing, Random Lengths.			
	S. & S.	I. J.	
2 to 3 inch.....	58	53 1/2	
3 1/4 to 4 inch.....	63	59	
4 1/4 to 12 1/2 inch.....	65	61 1/2	
Casing, Cut Lengths.			
	S. & S.	I. J.	
2 to 3 inch.....	53 1/2	59	
3 1/4 to 4 inch.....	59	55	
4 1/4 to 12 1/2 inch.....	61 1/2	57 1/2	
Boiler Tubes.			
	Up to 22 feet.		
Steel.			
	Per cent.		
1 inch to 1 1/2 inch and 2 1/2 inch to 5 inch, inclusive....	65 1/2		
2 inch to 2 1/2 inch, inclusive.....	60		
6 inch and larger.....	59		
Iron.			
1 inch to 1 1/2 inch and 2 1/2 inch.....	43 1/2		
1 1/2 to 2 1/2 inch.....	43		
2 1/2 to 13 inch.....	53		

Prices made by the mills to the jobbers are from 5 to 10 per cent. lower than the above.

Coke.—The output of Coke in the Connellsville region last week was 230,017 tons, a slight decrease over the previous week. Shipments were 10,828 cars. A good many Furnace Coke contracts expire on July 1, and negotiations are already under way for renewal of these. We quote strictly Connellsville Furnace Coke at \$2, and Foundry at \$2.50 a net ton. Main Line Furnace Coke is held at \$1.75 to \$1.85, and Foundry at \$2 to \$2.25, depending on make.

The Purchasing Agent of the American Bridge Company.—In the report of the details of the organization of the American Bridge Company, published in *The Iron Age* last week, an error was made. E. A. Muench being named as the purchasing agent. That post is occupied by F. W. Heisler.

The German Iron Market.

ESSEN, May 8, 1901.—Since my last report there has been an undoubted increase in activity, inquiries having become numerous and the operation of the plants is approaching normal conditions. Prices, however, remain unchanged at the very low level, and values for finished products are not higher to-day than they have been at the worst of times. Then the prices for Coal, Ore and Pig Iron were low, while now the mills and steel works are tied up with old contracts on raw materials. The result is that all the works who do not possess their own collieries and their own blast furnaces are working under actual loss. The end of this extraordinary condition of prices is not yet in sight. It is true that an increase in activity and building is expected in the spring, and that this ought to lead to larger orders for structural material. Besides, the demand artificially held back for a long time in all branches is now asserting itself. However, in view of the fact that a considerable number of new plants have started in recent years and that the majority of the older works have increased their capacity by changes and extensions, it seems improbable that we may expect an adequate development in the requirements as existed in the years 1898, 1899 and the first half of 1900. It is natural that under such conditions the German Iron industry is striving with all its strength to increase its exports of products.

In the realm of syndicates the announcement may now be made that the expected Upper Silesian Pig Iron Syndicate has been finally confirmed.

There is no business doing in Ores, since the smelting plants are tied up for a long time with old contracts and cannot use the offers of cheap Ores made from time to time, particularly by foreign producers. No sales are being made in Pig Iron aside from small quantities of high quality material. The deliveries on old contracts, concerning which complaints were rife for a long time, have become better. This is notably the case with the foundries who are drawing more heavily on older contracts. Stocks of Pig Iron at the furnaces themselves have hardly undergone an increase, partly because the blast furnaces have adapted themselves to changed conditions by blowing out, but steel works carry very large stocks of Pig Iron. Large quantities of Old Material are being offered without effecting sales, and prices are naturally depressed. We quote Old Iron Rails 66 to 67 marks; Heavy Melting Scrap, 49 to 60 marks; Heavy Cast Iron Scrap, 55 to 56 marks; Heavy Wrought Iron Scrap, 52 to 53 marks, f.o.b. consumer's mill.

Inquiries are better in Billets, Blooms and Slabs. Prices are nominally unchanged, but an export bounty is granted on Steel which amounts to about 5 marks per ton. Several outside open hearth plants are steadily underselling the syndicate. There has been a little more animation in the export trade in Muck Bar, the home demand, however, remaining very quiet. Good Westphalian and Siegen Puddled Bars are quoted 105 to 110 marks per ton.

The position has decidedly improved in Bar Iron, deliveries being active. It looks as though the large stocks will gradually disappear. Prices have accordingly hardened, and Steel Bars and Light Sections of Steel are selling at 120 marks, Bar Iron at 122.50 to 130 marks, Special Grades at 130 to 140 marks, Hoops 125 marks, Steel Skelp at 127.50 to 132.50, Iron Skelp at 155 to 165 marks, and Iron Gas Pipe Skelp at 137.50 to 142.50 marks. The Tube mills are better employed, both for Merchant Pipe and for Boiler Tubes. A sharp competition, however, has prevented any increase in the unremunerative prices current.

The demand for Plates is good, and the existing syndicate has been extended for three years, a fact which has had its effect upon the business. The demand for Boiler Plates, which has been held back, has now appeared, and orders have also been received for Ship Plates, so that the market is well supplied with work. The same is true for Sheets, but the prices prevailing, 125 to 130 marks per ton, cause loss. The activity in Wire noted in my last report has continued. It was possible to increase the price on ordinary Wire Rods from

135 marks to 140 marks per ton. There is a good deal of work in Railroad Material, and a large order for engines is soon to be given out by the State roads.

Machine shops, structural shops and iron foundries are employed very irregularly; while some of the plants are filled up for a long time to come, others are eagerly seeking work.

New York.

NEW YORK, May 29, 1901.

Pig Iron.—The market continues very quiet and has not been improved by the troubles in the machinery trade. We quote: Lehigh, Schuylkill and Virginia Irons, No. 1, \$16.50 to \$17.50; No. 2 X, \$15.25 to \$15.75; No. 2 Plain, \$14.25 to \$14.50; Gray Forge, \$14 to \$14.50; Tennessee and Alabama brands, No. 1 Foundry, \$15.25 to \$15.75; No. 2 Foundry, \$14.75 to \$15; No. 1 Soft, \$15.25 to \$15.75; No. 2 Soft, \$14.75 to \$15; No. 3 Foundry, \$14.25 to \$14.50; No. 4 Foundry, \$13.25 to \$13.50; Gray Forge, \$13.25 to \$13.50.

Steel Rails.—It is reported that now the total orders booked from October 1, 1900 to date amount to 2,600,000 tons, exclusive of seconds. We quote \$28 for Standard Sections, \$32 to \$32.50 for Girder Rails, and \$22 to \$23 for Relays. We quote Spikes, \$1.80c. to 1.85c.; Splice Bars, 1.45c. to 1.50c.; Square Track Bolts, 2.35c. to 2.40c., and Hexagon Bolts, 2.45c. to 2.50c., at mill.

Finished Iron and Steel.—A number of interesting contracts have been taken by the American Bridge Company. Among these we notice 400 tons for the building of the Bank of Australasia, Sidney, and 300 tons for a private residence for Pulitzer. In competition with yellow pine, a steel building has been constructed for a boiler shop at Augusta, Ga. Among the other orders are 825 tons for the new shops of the Missouri Pacific in Arkansas, 600 tons for an elevator at Minneapolis, 1450 for the Manhattan Warehouse Company at Philadelphia, 1500 tons for eight spans for the Kansas City, Fort Scott & Memphis, 500 tons for a highway bridge near Bridgeport, Conn., and a round lot for a new theatre at Boston. We quote as follows at tidewater: Beams, Channels and Zees, 1.75c. to 1.80c.; Angles, 1.75c. to 1.80c.; Tees, 1.80c. to 1.85c.; Bulb Angles and Deck Beams, 2c.; Sheared Steel Plates are 1.80c. to 1.85c. for Tank, 1.90c. to 1.95c. for Flange, 2c. to 2.05c. for Fire Box. Charcoal Iron Plates are held at 2.25c. for C. H. No. 1, 2.75c. for Flange, and 3.25c. for Fire Box. Refined Bars are 1.50c. to 1.60c.; Common Bars, 1.45c. to 1.50c.; Soft Steel Bars, 1.62½c. to 1.65c., and Hoops, 1.90c. to 2c., base, on dock.

Metal Market.

NEW YORK, May 29, 1901.

Pig Tin.—Under the influence of the speculative movement, which is dominating the market both here and abroad, spot prices advanced to 28.35c., reacted to 27.95c. and closed to-day 28.12½c. to 28.35c. July and August closed 28.05c. to 28.15c. That the movement is entirely speculative is evinced by the fact that consumers are amply supplied at much lower prices. The buying movement during the week was practically nil. The London market advanced to £131 10s. for spot, declined to £128 15s. and closed £128 15s. The quotation for futures closed at £127 10s. Arrivals so far this month have amounted to 2626 tons, deliveries 2500 tons and stock at Atlantic ports 3244 tons. To-morrow the Banca sale of about 2500 tons will be held at Rotterdam. Shipments from the Straits are expected to be large and are variously estimated at from 3900 to 4200 tons, which would be an increase of from 500 to 800 tons above last year.

Copper.—This market has been extremely dull, with prices for home consumption kept the same as before. The principal producing interests are still holding for 17c. for Lake and 16½c. for Electrolytic and Casting. The London market showed a declining tendency, closing to-day at £69 3s. 9d. for spot and £69 15s. for futures. Best Selected declined 15 shillings to £75. Exports thus far this month show an aggregate of 9560 tons.

Pig Lead.—There was an increase of the volume of business transacted during the week, but prices remain unchanged. The American Smelting & Refining Company continue to quote 4.37½c. for Desilverized, New York, and 4.32½c., St. Louis. In St. Louis the market for independent brands was very strong, with an advance of from 5 to 10 points. The London market advanced 6s. 3d. for the week to £12 8s. 9d.

Spelter.—Continues in its spiritless manner at unchanged prices. Quotations still name 3.95c. to 4c. as the ruling figures for New York. St. Louis is quoted 3.77½c. to 3.80c., and the London cables name £17 15s., a decline of 5 shillings.

Antimony.—Is easier as far as the ordinary brands are concerned. Hallett's is quoted at 8½c., and Hungarian 8½c. Cookson's remains unchanged at the nominal price of 10½c.

Nickel.—Lots not covered by yearly contract are not obtainable under 60c.

Quicksilver.—There is no change. Prices quoted here are \$51 per flask of 76½ pounds for lots of 50 flasks or more. The London market is unchanged at £9 2s. 6d.

Tin Plate.—The demand is fair, and prices are unchanged. The American Tin Plate Company continue to quote deliveries until October 1 on a basis of \$4.19 per box of Standard 100-lb. Cokes, f.o.b. New York, and \$4 per box f.o.b. mills.

Kidder, Peabody & Co. of Boston, who are managing the exchange of stock in the consolidation of Copper interests under the lead of the Amalgamated Copper Company, are requesting holders of Boston & Montana and of Butte & Boston who have deposited their stock with them, preparatory to an exchange for Amalgamated, to bring their receipts in and allow them to be stamped, authorizing their exchange on the basis of 1 for 4 in the case of Montana, and on even terms in the case of Butte.

The Amalgamated meeting to authorize the exchange will be held June 6. The vote, it is not doubted, will be affirmative, but is likely to be followed by injunctions and delays.

Kidder, Peabody & Co. state that all of the large stockholders, both of Boston & Montana and of Butte & Boston, have consented to the exchange on the terms stated, and that any who do not wish to make the exchange on these terms, upon request, will have their stock returned to them, or it will be purchased at \$92.50 per share for Butte, or \$375 per share for Montana.

A dispatch from Joplin, Mo., states: "The Zinc mine owners feared that the smelters would cut prices of Ore last week, and a feeling of uneasiness led to a big meeting of the mine owners to pledge themselves to the plans previously adopted for exporting one-fourth of the Zinc Ore produced in the Missouri-Kansas mining district. The mine owners agreed to continue the exportation of Ore for one year. This forced the Ore prices up from \$27.50 per ton, which was at first offered for high grade Zinc Ore, to \$29 a ton for that in the bin."

Otto G. Schultz, formerly manager of the Keystone Works of the American Bridge Company, in Pittsburgh, has been made treasurer of the Pittsburgh district and assistant treasurer of the American Bridge Company. His headquarters will be in the Empire Building in Pittsburgh. C. L. Mackenzie, formerly manager of the Shiffler Works of the American Bridge Company, has also resigned, and his place has been filled by James H. Thompson, a former timekeeper. Thomas Connolly, former superintendent of the Keystone Works in Pittsburgh, has resigned, and his place has been filled by the appointment of A. O. Colwell, formerly assistant superintendent. These changes are in line with the policy of the American Bridge Company, to promote from the ranks.

Col. George M. Reed, formerly vice-president and treasurer of the Pratt & Whitney Company, of Hartford, Conn., died on May 22 at his home in Tariffville, Conn., aged 60 years.

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING MAY 29, 1901.

Cap'l Issued.		Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday.	Closing quotations.	Sales
\$10,000,000	Am. Bicycle Co., Com....	.....	.....	6 - 6½	- 6	.....	.....	...	800
20,000,000	Am. Bicycle Co., Pref....	-33	.....	-31	.....	.....	.....	...	300
10,000,000	Am. Bicycle Co., Bonds....	.....	-80	.....	-80	80 - 80½	.....	...	12,000
29,000,000	Am. Car & Foundry, Com.	26 - 26¾	26¼-26½	26¼-26½	26¼-26½	26¼-28¾	27½-29	27¾	64,600
29,000,000	Am. Car & Foundry, Pref.½	79¾-81½	80 - 80¾	-80¾	80¾-80¾	80¾-83	81¾-82	82	13,500
7,500,000	Bethlehem Iron†.....	63	-63	.....	.....	.....	.....	...	155
15,000,000	Bethlehem Steel‡.....	-21½	-22	-22	.....	-21¾	-21¾	...	1,500
7,974,550	Cambria Iron, Phila.*.....	-46½	45½-46½	46¼-46¾	46¼-47	-47	.....	...	1,784
16,000,000	Cambria Steel**.....	21¼-22	21¾-22¾	22 - 22¼	21½-22	21¾-21¾	-21¾	...	17,152
17,000,000	Colorado Fuel & Iron....	92 - 93	92¾-93	-93	-92	92½-93	93¾-94¾	94¾	4,500
24,410,900	Crucible Steel, Com.....	.....	.....	.....	.....	.....	.....	...	.....
24,399,500	Crucible Steel, Pref.....	.....	.....	.....	.....	.....	.....	...	.....
1,975,000	Diamond State Steel||....	- 6¼	6 - 6½	6 - 6½	.....	5½- 6	- 6	...	1,275
15,000,000	International Pump, Com.	.....	-40	-40	.....	-40	-39½	39½	600
12,500,000	International Pump, Pref.	-82½	.....	.....	.....	-81½	.....	...	400
11,000,000	International Silver.....	6½- 6¾	- 6¾	.....	.....	- 6¾	- 6½	6½	2,000
10,750,000	Penna., new., Com., Phila.	36 - 36¾	36 - 36¾	36¼-36½	36¾-36½	37 - 38	.....	...	3,920
16,500,000	Penna., new., Pref., Phila.½	-82	85 - 90	.....	-82	-81	.....	...	304
12,500,000	Pressed Steel, Com.....	45 - 46½	45 - 45¾	45¾-46	-45¾	46 - 46½	45¾-46	46	11,100
12,500,000	Pressed Steel, Pref.....	.....	83 - 84¾	84¼-85	85 - 85¾	86 - 86¼	85½-86	86	1,700
27,191,000	Repub. Iron & Steel, Com.	18¾-19¼	-18½	18¾-19	18 - 18¾	18¼-19	18¾-19	19	3,400
20,306,900	Repub. Iron & Steel, Pref.	73¾-74	73½-73¾	74 - 74½	73½-74½	-74	74 - 74½	74¾	3,000
7,500,000	Sloss-Sheffield S. & I. Com.	-35	35 - 35½	.....	.....	.....	.....	...	300
6,700,000	Sloss-Sheffield S. & I., Pref.½	83 - 83¾	-81	.....	.....	.....	.....	...	500
20,000,000	Tennessee Coal & Iron....	56¼-56½	56 - 56½	.....	55½-56¼	-55	56½-58	57¾	3,200
1,500,000	Tidewater Steel||.....	.....	- 7	7¼	- 7¼	- 7¾	- 7	...	642
506,473,400	U. S. Steel Co., Com.||||	43½-44¾	43¾-44½	44 - 44½	43¾-44¼	43¾-44½	44¾-46	46	171,600
508,486,300	U. S. Steel Co., Pref.||||	92½-93¾	92¾-93½	93 - 93½	93 - 93½	93½-93¾	93¾-95	94¾	87,490
1,500,000	Warwick I. & S.||.....	.....	7 - 7½	.....	- 7½	7½- 7¾	- 7¾	...	435

Preferred stocks 7% cumulative unless otherwise stated. ½ 7% Non-Cu. | Par \$10. || Par \$50. \$1 paid in. || Authorized Capital \$550,000,000 Common; \$555,000,000 Preferred; * Par \$50. ** \$10.50 per share paid in. † 6% guaranteed by Beth. Steel Co. Late Philadelphia sales by telegraph.

Bonded Indebtedness: American Bicycle Co., \$10,000,000 sinking fund gold debentures 5%; Cambria Iron Co., \$2,000,000 6% debenture 20-year bonds, 1917, payable option 5 years, assumed by Cambria Steel Co.; Diamond State Steel Co., property leased from Diamond State Steel Co. at 4% on \$1,000,000, \$6.25 on Steel stock paid in, \$1.25 called for June 1st, total capital \$2,000,000; Tennessee C. I. & R. R. Co., \$2,867,000 6%, \$1,114,000 7%, \$1,000,000 7% cu. pref.; Pennsylvania Steel, \$1,000,000 5% Steelton 1st, 1917, \$2,000,000 5% Sparrow's Point 1st, 1922, \$4,000,000 consolidated, both plants; Bethlehem Iron, \$1,351,000 5% maturing 1907, interest and principal guaranteed by Bethlehem Steel Co.; Republic Iron & Steel, none; Warwick Iron & Steel, none; Colorado Fuel & Iron Co., Col. Fuel Co. Gen. Mort. 6% \$880,000, Col. Coal & Iron Co. Mort., 6% \$2,810,000, Col. Fuel & Iron Gen. Mort. 5% \$2,809,000, also outstanding \$2,000,000 preferred stock; Sloss-Sheffield St. & I. Co., Sloss I. & S. first mortgage 5%, \$2,000,000, Sloss I. & S. general mortgage 4¼% \$2,000,000. U. S. Steel Corporation \$304,000,000 5% gold bonds, also Am. S. & W. Co. \$130,656, Federal Steel Co. \$9,822,000 Illinois 5%, \$7,417,000 E. J. & E. R. R. 5%, \$1,000,000 Johnson 6%, \$6,732,000 D. & I. R. R. R. 5%, \$1,000,000 2d D. & I. R. R. R. 6%, \$10,000 land grant D. & I. R. R. R. 5%; National Steel \$2,561,000 6%.

Iron and Industrial Stocks.

The week has been a quiet one, but steel stocks have been steady throughout, and to-day displayed an advancing tendency. From Philadelphia comes the report that the negotiations for the control of the Bethlehem Steel Company by the Vickers-Maxim-Cramp aggregation had been broken off and had then been again renewed.

	Bld.	Asked.
E. W. Bliss, common.....	145	.....
E. W. Bliss, preferred.....	130	140
Cramp's Shipyard stock.....	85	87
Dominion Iron & Steel Company.....	34	.....
Empire Iron & Steel, common.....	6	8
Empire Iron & Steel, preferred.....	30	35
National Enam. & St., common.....	21	22
National Enam. & St., preferred.....	83½	85
New Haven.....	4¾	4¾
Otis Elevator, common.....	31	32
Otis Elevator, preferred.....	91	92
Pratt & Whitney, preferred.....	85	90
U. S. Cast Iron Pipe Company, common.....	8	8½
U. S. Cast Iron Pipe Company, preferred.....	40	41
U. S. Projectile.....	117	.....
Va. C. I. & C., stock.....	7	9
Va. C. I. & C., bonds.....	50	51
H. R. Worthington, preferred.....	110	114

The Girard Trust Company of Philadelphia, trustee, will close their books June 30 for transfer of receipts issued for deposits of stock of the Diamond State Steel Company. Certificates for preferred and common stock of the Diamond State Steel Company will be deliverable on and after June 17.

Dividends.—The Alabama Consolidated Coal & Iron Company have declared a dividend of 1¼ per cent. on the preferred stock, payable June 1.

The Boston Woven Hose & Rubber Company have declared a semiannual dividend of \$3 per share on their preferred stock, payable July 15 to stock of record June 10. Books will be closed from June 10 to 15, inclusive.

The Republic Iron & Steel Company have declared the regular quarterly dividend of 1¼ per cent. on their preferred stock, payable July 1. Books close June 15 and reopen July 2.

The Jessop Plant.

Plans are now being prepared by James J. Mahon of Chicago for the new plant which is to be located in this country by William Jessop & Sons, Limited, of Sheffield, England. It has practically been decided to build this plant at Little Washington, Pa., but the deeds for the property selected have not yet been passed, and there is still a possibility that this will not be the site.

William F. Wagner, the American representative of the company, stated to a representative of *The Iron Age* that the new works were not to be employed in the manufacture of high grade tool steel. Neither will the new works be a branch of the English house. The American company are to assume a different name from that held by the parent concern in Sheffield. The product of the works is to consist of strictly crucible sheet steel. The buildings will be six in number, and will cover an area of about 500 feet square. Besides the sheet mill there will be a hammer shop, machine shop, heating furnace house, melting furnace house, producer house and boiler house. It is not expected that work will be started on the new buildings within two or three months, as the plans will be sent to England for approval after they have been completed by Mr. Mahon. It is intended to have the plant in operation about January 1, 1902. The equipment will be purchased in this country.

William Goiding, a civil and mechanical engineer of wide reputation, died on May 28 in New Orleans, La., after a long illness, aged 64 years. He was born in England, and came to this country when a boy. In 1860 he went to New Orleans and established a steamship line between that city and Mexican and Texan ports. After the Civil War he established the Novelty Iron Works in New Orleans, which he conducted for many years. President Arthur appointed Mr. Goiding Supervising Inspector of Steam Vessels at New Orleans.

The Chicago and Northwest Machinery Market

1205 FISHER BUILDING, CHICAGO, May 25, 1901.

Our advices from the general manufacturers of machinery would be of the most encouraging character if the machinists' strike was not clouding the situation. While quite a number of machine shops in this territory have not been affected by the strike, yet a great many are either shut down or are being operated under a temporary agreement pending the adjustment of disputed points by arbitration. Orders for machinery are consequently being held up to a considerable extent, and much business expected to be placed will be held in abeyance until the situation resumes its normal condition. Several large projects, such as the new Allis plant and the Brown-Corliss engine plant at Milwaukee, the Quincy Engine Works, at Quincy, Ill., and improvements in sundry large shops in this vicinity would have involved the purchase of a great deal of machinery by this time or very shortly, but for the uncertainty caused by the strike. These projects will, of course, be ultimately carried through, so that the business is merely deferred. An element which has served as a stimulus to certain branches of the machinery trade is the activity in new oil fields. Pumping machinery, boilers and belting have been in brisk demand, and a number of large orders have been filled. The South and Southwest have for this reason been productive of more active machinery operations than they usually are.

Engines.

The demand for engines has not subsided. Impending labor troubles have checked outright purchases somewhat, but the number of inquiries has not decreased. Large engines still lead in demand, while orders for small ones have been on the decrease if anything. The consolidation of some of the largest engine builders seems to have had no noticeable effect on the trade yet. The demand for large second-hand engines continues strong, but the engines are not to be had. Dealers in second-hand engines are not doing a flourishing business, because the demand for small engines is unsatisfactory, and, as noted above, there is a scarcity of large ones.

The Edward P. Allis Company, Milwaukee, Wis., say that the past month has brought a number of important orders, the principal one being from the Metropolitan Railway Company of Kansas City, Mo., for five vertical cross compound direct coupled engines, three of these machines having cylinders 46 and 94 x 60 inches, and two having cylinders 34 and 70 x 48 inches. The Calumet & Hecla Mining Company of Calumet, Mich., have ordered a twin vertical steeple compound engine with cylinders 17 and 40 x 48 inches. An order for mining machinery, including engines, amounting to about \$100,000, has been received from Mexico. They regard the outlook most encouraging, if the labor troubles are of short duration.

The Filer & Stowell Company, Milwaukee, Wis., have a great deal of work ahead, some contracts running eight months, but their machinists are now on strike, and the future is, therefore, uncertain. They are waiting for a rearrangement of their side tracks, and, when these are settled, they have plans made for an erecting shop 80 feet wide and 300 feet long by 60 feet to the rafters. This will be a steel and brick structure.

The Nordberg Mfg. Company, Milwaukee, Wis., say that business conditions continue very favorable. Inquiries are enormous and for large values. The orders placed this month are fully up to the average, the only condition insisted upon by the purchaser being prompt delivery, prices appearing to be of secondary consideration. It is impossible to say to what extent the strike just inaugurated will affect their line of business. It is too early to hazard a prognosis.

The Witte Iron Works Company, Kansas City, Mo., state that the machinists in Kansas City walked out May 8, since which time they have been running with non-union labor. Business is very satisfactory, orders

being plentiful. Many of their engines and hoisters are going to Mexico, although some also go to the Northwest. They anticipate making a number of improvements in their plant as soon as the machinists' strike is settled, particularly in large and automatic tools, with a view of still further reducing the cost of building engines.

The Charter Gas Engine Company, Sterling, Ill., report their business for the first three weeks of May very favorable, orders coming in from all over the continent. Their machine shop the last week has been practically closed on account of the strike. They have just shipped a carload of engines to Richmond, Va., to agents there who have had a number of carloads shipped to them previously. Ere this they would have made a considerable investment in more machinery and in another building but for the threatened strike, which caused them to defer these improvements.

The Camp Engineering Company, 47 Lake street, Chicago, have sold a number of engines, the largest of which was a 100 horse-power slide valve to the Standard Slaughtering Company of Chicago.

Boilers.

The general activity around boiler shops shows that the boiler trade is not suffering. As is the case with engines, the larger boilers have the greater demand. The medium sized boiler manufacturers are extremely busy on home orders, but most of the larger manufacturers are behind in orders for large units. The business done in April would be hard to beat, but some of the manufacturers state that, in spite of this the May sales will be higher than those of the previous month. Several large orders have been booked, and a battery of nine boilers was shipped last month by one manufacturer, which had almost 10 miles of tubing. Second-hand boilers are in fair demand, and some good sized orders for these goods have been secured.

The S. Freeman & Sons Mfg. Company, Racine, Wis., say that business during the past several months has been very satisfactory. They now have orders which would keep them busy for three to four months if they did not get anything else. They notice a decided improvement in the inquiry for internally fired boilers, and have orders now for about a dozen such boilers, ranging in size from 100 to 250 horse-power, all of them having corrugated furnaces.

Wickes Brothers, Saginaw, Mich., report that the demand for machinery during the month of May has been very brisk. They have taken orders for a very large quantity of saw mill and general factory equipment, as well as quite a number of tools for the equipment of boiler shops. Among the orders taken are a large portion of the machinery equipment of the Saginaw Plate Glass Company, including 15 immense grinding and polishing tables, and 2000 horse-power vertical water tube boilers, 2500 horse-power boilers for the Corning & Co. distillery, at Peoria, Ill.; 2000 horse-power for the Saginaw Sugar Company of Saginaw, Mich., and 2000 horse-power for the Lansing Sugar Company, Lansing, Mich. They are just commencing the reconstruction and enlargement of their No. 1 machine shop, which will be a building about 80 feet wide and over 200 feet long, to have an electric traveling crane, a 30-foot pulley lathe and a fine equipment of modern tools and appliances throughout.

Pumping Machinery and Supplies.

Business in this line is more active than usual. There is a steady demand for large pumping outfits, especially from oil pumping and refining regions. The trade in tanks, compressors, &c., has increased over that of last month, and of the corresponding month of 1900. Trade in second-hand pumping apparatus is especially good.

The Union Steam Pump Company, Battle Creek, Mich., say that while everything seems to be in a normal condition they are obliged to anticipate their capacity most of the time. They are constantly adding to the equipment of machinery and floor space on which to do their work, and are usually behind from a week to ten days on special orders. Their business this year is

the largest in their existence. Last year their business was 75 per cent. more than the previous year, but they do not expect this year to show more than 50 per cent. gain over that.

The Gardner Governor Company, Quincy, Ill., find business keeping pace with the previous months of this year. They have experienced no decrease in demand. The present labor trouble, though, they fear, will have some effect on business, but just what the nature of it will be is too early to predict. Their orders are coming from all over the country, prosperity not being confined to any particular locality.

The American Steam Pump Company, Battle Creek, Mich., have found business very good during May, and their sales will show about 10 per cent. increase over the corresponding month of last year. Among notable contracts recently secured are the pumps for the new sugar factories at Saginaw and Lansing, Mich., also at Loveland, Col. They are installing two 66 inch by 18 foot boilers in their power house, which will make their new boiler plant 400 horse-power. They have doubled the size of their testing room, and have been adding considerable new machinery. They have brought out a new line of Marsh pumps with jet condenser, also an automobile boiler feeder and a combined boiler feeder and air compressor.

Elevating, Conveying and Power Transmitting Machinery.

The season for this class of machinery has fairly opened, and there is a tremendous amount of figuring. Some of the manufacturers are working to their full capacity, and the rest are preparing for a notable business. There was some hesitancy on account of the strike, but it is hoped that the danger of a serious blocking of trade is past. There have been no extraordinary deals, but a good, steady business has characterized the past three weeks.

The Dodge Mfg. Company, Mishawaka, Ind., report that business seems to be quite active, and the outlook for new construction better than for many years. They are now erecting a new foundry addition, 125 x 250 feet, and will soon start on a machine shop addition of the same size, both buildings to be equipped with efficient crane service. Late contracts are the Singer Mfg. Company's new plant at South Bend, Ind., including all the power transmitting machinery required for distributing 2000 horse-power throughout the works; also three 2500 horse-power rope drives, two 1000 horse-power cross drives, one 800 horse-power and one 750 horse-power cross drives as well as all of the shafting and clutches for plant No. 5, and all of the shafting for plant No. 4 of the Pittsburgh Plate Glass Company, Ford City, Pa.

The American Hoist & Derrick Company, St. Paul, Minn., say that business has been quite active during May, and indications are that the activity will continue.

The Whiting Foundry Equipment Company, Harvey, Ill., have a great many orders on their books, and prospects are very encouraging. They have just entered one order for five large three and four motor electric travelers. Their capacity is increased by the addition of a blacksmith shop, 40 x 100 feet, and new tools, including a 1500-pound steam hammer, riveters, punches, lathes, drills, &c. They are also building a tool room, 40 x 100 feet, additional to their present shop room, and are adding a second story to the office. As a result of these improvements they will be enabled to increase their output considerably.

The Link-Belt Machinery Company, Thirty-ninth street and Stewart avenue, Chicago, have erected a wrought shop, 120 x 260 feet, which will be equipped with two electric cranes, and the most approved wrought shop equipment. Their business this month has run ahead of that of April. Among their recent contracts was one for ten coaling stations for the Chicago & Alton Railroad Company.

The Webster Mfg. Company, Fifteenth street and Western avenue, Chicago, have closed contracts for conveying and power transmitting machinery for the Glucose Sugar Refining Company, New York; power transmission and rope drives for several rice mills in Louis-

iana; power transmitting machinery for the Grand Trunk Elevator, at Portland, Maine, and all the conveying and power transmitting machinery for the new elevator being built for the Indianapolis Elevator Company, Indianapolis, Ind. The latter deal was closed with the contractor who is erecting the elevator.

Pawling & Harnischfeger, Milwaukee, Wis., state that the volume of business secured continues to keep well up to the average of the past year. They have recently received orders for electric travelling cranes as follows: Midvale Steel Company, Philadelphia, Pa., one 50-ton with 15-ton auxiliary hoist, one 30-ton with 10-ton auxiliary hoist, two 25-ton, one 15-ton and one 10-ton with 3-ton auxiliary hoist; Wheeling Mould & Foundry Company, Wheeling, W. Va., two 20-ton and one 10-ton cranes; Hood Machine Company, Birmingham, Ala., one 10-ton; Mountain Copper Company, Keswick, Cal., one 25-ton; New York Shipbuilding Company, Camden, N. J., one 15-ton; United States Government, new Printing office, Washington, one 25-ton; E. Hodge & Co., Boston, Mass., one 15-ton; National Steel Casting Company, Montpelier, Ind., one 20-ton with 5-ton auxiliary hoist; Erie City Iron Works, Erie, Pa., one 25-ton with 5-ton auxiliary hoist; Vilter Mfg. Company, Milwaukee, Wis., one 30-ton and one 15-ton; Wisconsin Bridge & Iron Company, Milwaukee, Wis., one 15-ton; Butte City Water Company, Butte City, Mont., one 20-ton, double trolley; Waterbury Farrel Foundry & Machine Company, Waterbury, Conn., one 20-ton.

Machine Tools.

Trade continues good in the general lines of machine tools. Business this month has been somewhat better than that of April, and shows a marked increase over the corresponding month of 1900. There have not been any unusual sales. The greatest amount of business has been done in machine shop additions and repairs, and few complete machine outfits have been recorded as sold. Purchasers, in most cases, still divide their orders. As far as Chicago is concerned, the labor troubles have not produced any material effect on the machinery market. The local machinery manufacturers are busy filling previous orders.

Prices of machine tools and other shop equipment have been close for some time, a great deal of shopping being done by all buyers. It is expected, however, that hereafter prices will be firm, if indeed they do not advance from 5 to 10 per cent., owing to higher labor cost. It is considered inevitable that labor hereafter will be higher. The strikes at other machinery centers are causing much inconvenience here because of the inability of manufacturers in those localities to make deliveries of machines under contract.

The Chicago machinists are receiving a great deal of praise for the conservative manner in which they have conducted themselves. Instead of immediately declaring a strike on May 20, as was done in a number of other localities, they have continued at work awaiting the result of the arbitration agreed upon between the representatives of the machinists' union and the manufacturers.

Manning, Maxwell & Moore, Chicago, are doing quite a satisfactory trade in machine tools, although the volume of business is not so large as at the beginning of the month, when they enjoyed quite a sharp demand. They report plenty of inquiries for tools, and the prospects for the future are fairly encouraging.

The Pearson Machine Company are opening a sales room on the ground floor of their building on the northwest corner of Randolph and Canal streets, Chicago. They will display in this room a full line of samples of their standard machines.

Chas. H. Besly & Co., Chicago, find their current trade larger than ever before in their history. They, however, expect that their business may be affected by the machinists' strike if it continues for any time. Their goods are sold in all parts of the country, so that they cannot help feeling the strike in almost every locality. They have had a very large business in machine shop supplies, but have recently had considerable difficulty in securing stock with sufficient rapidity to keep their

trade well supplied. Manufacturers are so busy that prompt shipments are not being made. They are running their factory at Beloit 22 hours per day, and have so far had no trouble with their employees. They find that such specialties as they manufacture, after having been thoroughly introduced in the trade, are steadily becoming easier to sell. Thus they find that their Gardner grinders are constantly increasing in demand, with less effort on their part to push them. In the same way their Helmet oil, which has been before the trade for the past 15 years, is now selling in larger quantities than they ever thought it likely to reach. They are just shipping a quantity of material to the Rock Island Arsenal, on which they bid a year ago.

Hill, Clarke & Co., 14 and 16 South Canal street, Chicago, report a good month's business. They have not closed many extensive deals, but medium sized orders are very satisfactory. They have received good orders from the copper country of Michigan, and have made a number of large shipments to New and Old Mexico, and to Alaska.

The Hoefer Mfg. Company, Freeport, Ill., say that business continues to keep up, although last month was somewhat light. They have recently brought out several new machines, one being a knotting and weaving machine for bed springs, and another a vertical boring machine.

The American Machinery Company, Grand Rapids, Mich., have had an extraordinarily good business for the last month, especially in foreign shipments. They are about to remove from their present shop to one of larger dimensions, which will greatly increase their facilities for manufacturing Oliver wood trimmers and other pattern shop equipment. The Oliver Universal saw bench is keeping them very busy to fill orders.

Perry Ransom, Oshkosh, Wis., found the past month an exceedingly busy one. During the five months now closing he has sold as many small grinders as in any whole year before. Although usually able to make shipments from stock, he has recently found it almost impossible to keep any size of grinder ready for shipment. The new water tool grinder which was recently placed on the market is taking well. He is securing a great many good orders from the Southern States and from the Pacific Coast, from which formerly he was unable to secure orders of any size. He intends shortly to bring out some electrically driven tools.

The New Doty Mfg. Company, Janesville, Wis., are very busy and have plenty of work ahead. They have been enlarging their facilities by putting in some new machines, among them a large horizontal boring mill and an 8-inch vertical boring mill.

The Standard Pneumatic Tool Company, whose main offices are in the Marquette Building, Chicago, report that their business during May has been fully 50 per cent. in excess over that of the corresponding month of 1900, and that their trade has improved considerably in France and Germany. They will have a complete exhibit of all their pneumatic tools, in active operation, at the convention of the master mechanics and car builders, to be held at Saratoga Springs, N. Y., in June.

Mill Supplies.

There is a strong demand for all kinds of mill supplies. Belting especially has had a good run of business, some of the belting manufacturers having done more in the last month than in the six weeks preceding. Several very large orders have been closed, the bulk of trade coming from saw mills. The business done by Northern manufacturers in the South continues to be very satisfactory, and there is a general opinion that the South is on the border of an extensive industrial awakening. Pulleys, shafting, &c., are generally in accord with belting, the trade in these lines having picked up very materially.

The Moloney-Bennett Belting Company, Canal and Washington streets, Chicago, report that the business done during the month of May, 1901, was fully 30 per cent greater than that of the corresponding month of 1900. Among recent large contracts are complete belting outfits for the Gurney Refrigerator Company at

Fond Du Lac, Wis.; Sabine Lumber Company, Zoaville, La.; Albion Lumber Company, Albion, Cal.; Steenville Oil Company, Steenville, Texas, and the Ragley & Son saw mill, Tansas, Texas.

Skinner & Clark, 19 South Canal street, Chicago, have been awarded the contract for all the belting to be used in the extensive improvements being made in Forster, Waterbury & Co.'s plant at Franklin Park, Ill.

B. F. Gump, who has been in the mill supply business for the last 30 years, at 53 Canal street, Chicago, has sold out to the B. F. Gump Company, who will continue in the same line of business. The officers of the new company are: President, Geo. W. Moore, of Moore & Lorenz, elevator manufacturers, Chicago; secretary, A. D. Dorman, Western manager of the Union Drawn Steel Company, Chicago, and treasurer and manager, J. J. Ellis, formerly manager for Mr. Gump. The present quarters of the company are to be enlarged, and they will handle a full line of flour mill and elevator machinery, mill supplies and power and transmission machinery.

Miscellaneous.

The Manistee Iron Works, Manistee, Mich., are running their plant day and night. Among the contracts now in hand is one for a pair of 17-foot vacuum pans for making salt by the double effect process, the company being the only manufacturers who have built such pans to work successfully, turning out over twice as much salt with the same steam as is being done with the usual style single effect pan used in the same plant for the alternate shift.

The Stover Mfg. Company, Freeport, Ill., are having an unusually large demand for wind mills, so great that they are obliged to run overtime and then are unable to satisfy their trade. They are now busily engaged in putting up their new factory, which they hope to have ready to occupy October 1, and will then be able to very largely increase their output. The conditions for trade seems to be perfect, the business coming their way being the heaviest they have ever experienced.

The Novelty Iron Works, Dubuque, Iowa, have observed a marked falling off in new business recently, though the works are quite busy catching up with old orders. The lull is largely due to a lack of demand for seasonable goods, spring and fall being their best season. The demand for shingle sawing machines, however, is good and orders continue to be received from the Southern States. General job work is dull.

The D. Clint Prescott Company, Menominee, Mich., state that business keeps up very well, and that they are running full capacity, night and day. They have just finished a large addition to their machine shop, which has been under way for some time, and are putting up a boiler and engine house, in which to install a new engine and one more boiler. They are also about to erect a new building for storing patterns.

The Chicago House Wrecking Company, Thirty-fifth and Iron streets, Chicago, have done a very good business during the month of May. They have recently shipped a 10-ton complete ice plant to Kansas, three 150 horse-power boilers to Wisconsin, one 100 horse-power boiler, one 125 horse-power Westinghouse engine and a large Westinghouse alternator, together with complete electrical equipment, to a mining company in Texas. They have also shipped four 100 horse-power boilers to Mississippi, one 125 horse-power slide valve engine to Wisconsin, and three 75 horse-power boilers to the same State. They will soon commence the erection of a steel boiler shop, 100 x 600 feet. The company have just purchased the complete outfit of the pumping station at Thirty-ninth street and Grand Boulevard, Chicago.

Henry E. Pridmore, manufacturer of molding machines and copying presses, Nineteenth and Rockwell streets, Chicago, reports a good trade for May. His Eastern business has been very gratifying, and he has closed a number of large contracts for supplying Pittsburgh firms with molding machines. He has also closed a contract for supplying molding machines to a plumbers' supply company in Wisconsin. His European

trade has fallen off somewhat, but this is made up by the increase in home business.

The McGregor Company, 39 West Washington street, Chicago, dealers in new and second hand machinery and engines, report that their trade has been up to the average. They have shipped boilers and engines to various parts of the country, recently as far West as Idaho.

Rainier & Williams, dealers in new and second hand engines and pumping machinery, 63 South Canal street, Chicago, report a very satisfactory business for May. They have just sold three 250,000-gallon pumps to one buyer, and quite a number of engines, running from 10 to 100 horse-power, to others. They have recently made a noticeable purchase, consisting of a 12-inch centrifugal direct connected sand pump, with a 50 horse-power engine, and two New York safety valve 50 horse-power engines.

A. Sorge, Jr., & Co., 1020 Monadnock Building, Chicago, sales agents for Cochrane feed water heaters and other steam specialties, are finding a remarkably steady demand for such appliances. The demand is not now running to large installations, as at times in the past, but is more satisfactory because of its continuously good volume.

The Goodman Mfg. Company, Forty-eighth place and Halsted street, Chicago, have increased their working force, having received a large number of orders for their mining machinery. The bulk of their business has been coming from the West and Southwest.

The S. Obermayer Company, Nineteenth and Rockwell streets, Chicago, have done an exceedingly good business during May. They have received orders for cupolas from the Brass & Iron Bed Company, Grand Rapids, Mich.; Frost Mfg. Company, Galesburg, Ill.; University of Montana, Mont.; National Sewing Machine Company, Belvidere, Ill.; Woodcock Seed Company, Chillicothe, Ohio, and the Central Foundry Company, Vincennes, Ind. They have sold complete foundry outfits to the American Malleable Castings Company, Chicago Highlands, Ill., and L. E. Hinkley, Millersbury, Ohio.

The old Clyde Iron Works, Duluth, Minn., which have been operated for two years under the name of the Northwestern Supply Company, have been transferred to the Northwestern Mfg. Company. The new company recently bought the machinery and tools of the Northwestern Supply Company, and have taken a lease on the buildings. The Clyde Iron Works consist of a well equipped machine shop and foundry. The new owners will continue to operate both their old plant and the new acquisition.

The F. T. Brosi Company have moved into the old shops of the Gardner Governor Company, at Fifth and Ohio streets, Quincy, Ill. The Gardner Governor Company, having occupied their new works, the opportunity was afforded to the Brosi Company to enlarge their operations. They are installing considerable new equipment in the plant.

The Cleveland Machinery Market.

CLEVELAND, OHIO, May 27, 1901.

While the machinists' strike is having but comparatively little effect upon the ability of local manufacturers to turn out goods, and business is going on practically as usual, there is a marked falling off in the business being received by machinery manufacturers from the country at large. The tapering off of business was first noticed early in the month, and it has grown stronger as the prospects of a general strike grew more pronounced. Cleveland dealers say that the effects of the strike have been less injurious to the trade in this section than in almost any part of the country. A few small projects have been held up temporarily awaiting the outcome of the matter, but the more important improvements will not be affected.

The local atmosphere is rapidly being cleared from the indications of a strike. The daily reports received by the secretary of the local manufacturers' association indicate that the strikers are daily losing ground,

and it appears almost certain that the trouble so far as Cleveland is concerned will speedily settle itself. On Tuesday of last week 244 men were out; on Wednesday, 238; Thursday, 213, and on Saturday the number was reduced to 201. In every instance the men applied for their positions, and returned to work on precisely the same terms and conditions that were in operation before the strike. It is hardly probable that any effort will be made to import non-union men, as applications for positions are being made every day, and in a number of instances men have come from other cities.

There appears to be but little falling off in the demand for second-hand tools of large sizes, which has been very strong for some months past. The Garrett-Cromwell Engineering Company, who are engineers for the three large modern blast furnaces being built for the Crucible Steel Company of America, at Blair, Pa., have placed a contract with the Ritter-Conley Mfg. Company of Pittsburgh, for the structural steel work for the plant, amounting to about 4000 tons. They have also closed a contract with the Southwark Foundry & Machine Company of Philadelphia for seven vertical cross compound blowing engines, the blowing tubes measuring 86 x 60 inches. They will shortly close other important contracts for equipment, and report they are making rapid progress in the work of erecting the plant. It is expected that a portion of the plant will be in operation by the first of the year.

The Lake Shore & Michigan Southern Railway Company, who are erecting large machine shops at Collinwood, near this city, have placed contracts with the American Bridge Company for the structural work for the locomotive and machine shop and for the blacksmith shop, which will be the two largest buildings. They have also closed the following contracts for power equipment: Buckeye Engine Company, one 650 and one 125 horse-power engine; Crocker-Wheeler Electric Company, one 400 and one 75 kw. generator, and the Aultman-Taylor Company, two 600 horse-power water tube boilers.

The local representative of Henry R. Worthington has taken a contract for condensers and pumps for a 2500 horse-power railway generating plant for the Aurora, Elgin & Chicago Electric Railway, which is being built by Cleveland parties. Several good sized contracts have recently been closed up, and a number are in view for concerns who are modernizing their power plants.

The S. M. York Machinery Company have opened their new machinery warerooms at 263 St. Clair street, which are claimed to be the largest between New York and Chicago. The main store is 175 x 50 feet, with smaller store and office at one side. They will carry on the floor complete lines of the goods made by the concerns they represent as follows: Hendy Machine Company, lathes and shapers; Bradford Machine Tool Company, lathes; Draper Machine Tool Company, lathes; New Haven Mfg. Company, lathes and planers; Ohio Machine Tool Company, planers and shapers; Cincinnati Shaper Company, shapers; W. F. & J. Barnes Company, upright drills; Fosdick & Holloway Machine Tool Company, radial drills; Dwight Slate Machinery Company, sensitive and multiple drills; Becker-Brainard Company, vertical millers; R. K. Le Blond Machine Tool Company, plain and universal millers; Gisholt Machinery Company, turret lathes; Pearson Machine Company, screw machines; Philadelphia Machine Tool Company, power presses; Waterbury Farrel Foundry & Machine Company, open back power presses; Dodge Mfg. Company, wood pulleys, hangers and power transmitting machinery. They expect shortly to close for several other lines. The York Company have noticed a decided falling off in business during the past 30 days, which is attributed almost wholly to present labor troubles.

The local office of the Marshall & Huschart Machine Company have also noticed a let up in business during the past two or three weeks. They state, however, that inquiries continue as strong as ever, indicating that the setback is only temporary and comes from unusual

causes. They have recently sold a number of electrically driven machine tools to the American Steel & Wire Company for one of the local plants.

The Vulcanus Forging Company have placed a contract with the American Machinery Company of Willoughby, Ohio, formerly the American Clay Working Machine Company, for six rivet producing machines of a new type recently invented by F. W. Greenwood of the company. It is claimed that the new machines will have a capacity several times that of the machines now in use, and will be operated by one man instead of three as at present. If the machines prove satisfactory the entire plant is to be equipped with them. The plant of the Vulcanus Company will shortly be enlarged by the erection of a large steel building, giving them double their present floor space. They will also erect a new power plant. The Vulcanus Company are pushing the foreign business, and now have on hand orders which will keep them busy until September, even if the new machinery proves all that is claimed for it. Last week they received foreign orders for rivets aggregating 220 tons. In order to push the foreign business, they will shortly establish agents in several continental cities. The domestic business is also very strong. They have just received an order for 100 tons of rivets for the Bourne-Fuller Company and 50 tons for the Bassett-Presley Company, both of this city. They are shipping 20 tons of rivets and air brake pins to Chicago agents every week. F. J. Patterson of Milwaukee, president of the Vulcanus Company, is at present building a new forging plant in Milwaukee, in which the local people will be interested.

The Cleveland Punch & Shear Works say there has been a slight decline in the amount of business during the past 30 days, but inquiries continue strong. They have recently taken orders for the following: Garry Iron & Steel Company, Cleveland, one No. 3 angle shear and one Sheesley metal saw; the Empire Plow Company, Newburgh, Ohio, one multiple punch, 80 inches between housings; the Park-Lacy Company, San Francisco, one 20-inch plain jaw punch; Sharon Boiler Works, Sharon, Pa., one 26-inch throat punch; Wisconsin Bridge & Iron Company, Milwaukee, one 36-inch rotary planer, and the O. S. Kelly Company, Springfield, Ohio, one No. 2 cold saw. They have recently shipped the following large tools: Cleveland Hardware Company, one alligator shear; Kilby Mfg. Company, two 4-inch stroke high speed punches; American Car & Foundry Company, Detroit, two horizontal punches; Ohio Cultivator Company, one gate shear; Teachout Boiler Works, Cleveland, one angle shear; Cleveland City Forge & Iron Company, one bar shear, weight 35,000 pounds. The Cleveland Punch & Shear Works lost a number of machinists in the strike, but are daily securing new men, and the work has not been seriously interrupted.

Foot, Burt & Co. are at work on a number of large tools, among them two four-spindle drills, weighing 11,000 pounds, each for the Philadelphia & Reading Railroad Company's shops. They have not lost a man through the machinists' strike.

The Grant Tool Company are rapidly completing their new plant at Franklin, Pa., and expect to have it in operation about July 1. They are devoting as much time as possible to building machine tools for their new plant, but are building a number of large tools for outside manufacturers. They have recently taken a contract for a large port boring machine and a rotary planer for the E. P. Allis Company of Milwaukee.

Frederick Schultz, who was formerly with the Cleveland Ball & Screw Company, has organized the Automatic Machine Tool Company, and proposes to establish a factory in this city or vicinity for the manufacture of a line of automatic screw machines, upsetting machine and steel ball producing machines. He also proposes to engage in the production of steel balls of the larger sizes. He has recently built a number of ball making machines for an Eastern concern.

The Cleveland Hardware Company are now occupying their fine office building and warehouse, which is just being completed. The building is of brick and

steel, 206 x 90 feet, and four stories high. The former office and warehouse building is being fitted up as an extension of the manufacturing department, and considerable new machinery is being installed. They are equipping a new power house, and will drive much of the machinery by electricity from a 125 kw. generator recently contracted for with the Westinghouse Electric & Mfg. Company.

The Chisholm & Moore Mfg. Company have recently closed contracts for pneumatic cranes as follows: Two 15-ton, 60-foot span pneumatic cranes to Pittsburgh parties, one 10-ton pneumatic jib crane to Philadelphia parties, one 2-ton car crane to Cleveland parties, one 5-ton pneumatic crane to Chicago parties and one 4-ton hand power jib crane to a Cleveland concern. The company are completing a steel addition to their crane erecting shop. It will be 70 x 105 feet, and will be covered by two 10-ton pneumatic cranes. They state that this has been the busiest spring in the history of the company, and that the inquiries for pneumatic cranes are now the heaviest ever known. They also report a good demand for American standard rail joints, and are at work on a very good contract for a leading steam road.

The Cleveland Twist Drill Company state that thus far the effects of the machinists' strike has made little or no impression on their business. Each month this year has shown an improvement over the corresponding month of last year, and the month of May will run considerably ahead. They have recently made a number of heavy shipments to foreign countries, and they state that while there has been a marked decline in the demand from Germany, Austria and some of the other Continental countries, the demand from England and France shows no decline. The demand from Australia is exceedingly large at present.

The Garry Iron & Steel Company state there is a good demand for their cranes and hoists. They have recently taken a contract for structural work for an addition to the plant of the Cleveland Steel Castings Company. The Garry Company lost several men at the beginning of the machinists' strike, but they have already returned to work, and the work has not been delayed.

The New York Machinery Market.

NEW YORK, May 29, 1901.

There is little change from conditions as reported last week. Some of the large machinery merchants in the street are seriously affected by the machinists' strike, because the shops which they represent are tied up. Others, who are more fortunate in this respect, report that inquiry has fallen off considerably, but they are working off the product of their shops in helping out the dealers who are unable to supply their orders from their own sources. Through this co-operation of the dealers and the leniency of the purchasers no orders have been canceled as yet.

The stocks of machine tools in New York showrooms and warehouses are being drawn on, and they show it. It is some time since New York machinery warehouses showed a "hole in the floor," but now the blank spaces are to be seen frequently. Merchants consider themselves fortunate at having been prepared with so large a stock as they all had before their factories closed down.

In speaking of the strike one important member of the trade said: "I cannot see that it will hurt us particularly, even if the employers do grant the men the nine hours they are clamoring for. In the first place, if they have to give them the ten hours' pay it will tend to stiffen values. And besides, with all of the shops running on shorter time, they will be forced to add to their machinery equipment. In a shop employing a thousand men it will mean that 6000 hours a week have been taken from the producing capacity. In order to get out the work averaged when the shop was running full at ten hours it will be necessary to put on more machines. This will mean additional business for us."

In the ordinary lines of standard machine tools there are evidences of a general softening of values. There have been no official notifications of declines, but con-

cessions are not out of the question. In such lines as punches, shears, rolls and machinery such as is used at structural iron works the conditions are just the reverse. Owing to the present activity at structural iron works the demand for these classes of machinery has been heavy.

Information has reached us of additional contracts placed for equipment for the new plant of the British Westinghouse Company: The Brown & Zortman Machinery Company of Wood street, Pittsburgh, have received a very large contract for iron working tools for the new Manchester plant. The order includes 95 lathes, 58 milling machines, 11 planers and 3 cutter grinders. It is expected that this new plant of the British Westinghouse Electric & Mfg. Company will be in operation by January 1 next. Henry S. Loud is now over in Manchester superintending the construction of the buildings, and upon his return to America, which will be in a short time, it is expected that additional contracts, especially for the smaller tools, will be placed. Delivery of the machines taken by the Brown & Zortman Machinery Company is to commence in five months. This concern represent in Pittsburgh the Lodge-Shipley Machine Tool Company, Cincinnati Milling Machine Company and the Geo. A. Gray Company, all of Cincinnati, Ohio, and these concerns will all participate in these contracts.

John T. Allen of Gerard avenue, New York City, also received a contract from the British Westinghouse Company. It is for four riveting machines. These riveters are to have a reach of 25 inches, gap 15 inches, with cylinder 12 inches and will be capable of driving 1 1/4-inch rivets, although the specification calls only for 1-inch rivets. They are to be delivered in October.

Inquiries are being circulated in the trade by the National Wire Corporation of New Haven, Conn., for equipment for a new 2000 horse-power power plant and rod rolling and wire drawing machinery. The plant of this company was the victim of a disastrous fire recently and the present operations look toward the rebuilding of it.

It has definitely been decided by the Standard Traction Brake Company of 120 Liberty street, to build a large plant at Wilmerding, Pa., instead of Jersey City, as was first intended. As told in *The Iron Age* last week, the Westinghouse interests are concerned in the reorganized Standard Company, and the present plant at Jersey City will be removed to Wilmerding and consolidated with the new plant, which is to adjoin the works of the Westinghouse Air Brake Company. Chief Engineer Dewson of the Standard Company spent the major portion of last week in the vicinity of Wilmerding, making arrangements for the establishment of the new works.

It is reported that the Townsend & Downey Shipbuilding Company have received a \$200,000 order for repairing the North German liner "Saale," and will add to their machinery equipment for the purpose. The principal offices of the concern are located in the Produce Exchange Annex. Their plant is located on Shooter's Island, N. J.

Ever since their destruction by fire the works of the Brown Hoisting Machinery Company of Cleveland have been undergoing reconstruction. Plans have now been completed for the principal building or main machine shop. It will be 312 x 500 feet, and will be of steel fire-proof construction. It will be equipped with a complete assortment of heavy machine tools, orders for which are now being placed.

It is reported in the trade that the Kuhlman Car Company of Cleveland, of whom Fayette Brown is president, intend arranging immediately for the erection of a new plant. It is to be built at Collinwood, Ohio. Besides removing the machinery which is at present at Cleveland to the new plant a large equipment of new machine tools will be installed.

We are informed that William Sellers & Co., Incorporated, of Philadelphia, are asking bids for the erection of a brick and steel addition to their plant. The structure will be 100 x 100 and will be equipped with machinery.

The Fred Macey Company, Limited, of Grand Rapids,

Mich., are about to build a new extension to their plant to cost about \$100,000. They are inquiring in the trade for catalogues and prices of machine tools, and wood-working machinery. None of the contracts for the erection and equipment of the new plant have been awarded as yet.

In connection with the proposed additions to the plant of the Midvale Steel Company at Nicetown, Pa., to which we alluded some time ago, we are advised that Cramp & Co., the Philadelphia contractors, have received the contract for the buildings. The plans call for a three-story brick, stone and steel building, 85 x 421, and a single story building, 164 x 324 feet.

The Baldwin Locomotive Works of Philadelphia have awarded the contract for erecting the additions to their plant, which was mentioned in this column a short time ago. Rodyhouse, Arey & Co. of Philadelphia received the contract. The extension will consist of another story to the present repair shop, which is 195 x 49 feet. The contract amounts to about \$25,000. The new floor will be equipped with machine tools.

We are advised that the extensive alterations and additions at the plant of the George V. Cresson Company of Philadelphia are well under way and that most of the new space will be used for storage and erection purposes. The arrangement of the machine shops will be altered somewhat and the change has necessitated the purchase of a considerable quantity of new machinery and most of this has already been contracted for.

Information received in the trade from C. B. Muller & Co. of Bad Axe, Mich., is to the effect that they desire information regarding washing machines, such as are used in beet sugar factories and also on root cutters. The company intend building a chicory factory at Bad Axe, which is to have a capacity of 100 tons per day.

There is a probability that new bids will be advertised for by the municipality of Woodbury, N. J., for their proposed new pumping engine. Mayor Ladd vetoed a resolution which provided for the awarding of the contract to the Camden Iron Works.

New repair shops are to be erected at Rochester, N. Y., by the Rochester Railway Company. The present shop on St. Paul street is to be removed and new buildings with new machinery added are to be substituted. Plans for the building have been completed and bonds are to be issued by the company to defray the expenses of the improvements. J. T. Nicholl, the general manager of the company, has the matter in charge.

An Auditorium Hotel Building at Pittsburgh.

PITTSBURGH, May 28, 1901.—Henry C. Frick and Henry W. Oliver and well-known iron men of Pittsburgh, and W. L. Mellon, a banker and capitalist of this city, have about completed the purchase of a large frontage of property on Fifth avenue and Wood street in Pittsburgh, on which they purpose to build a modern 20-story auditorium hotel building. The hotel will be similar to the Auditorium Building in Chicago, and will be the finest building of the kind between New York and Chicago. The total investment of Mr. Frick, Mr. Oliver and Mr. Mellon in the site and building to be erected will be more than \$4,000,000. The building will be of steel skeleton construction and thousands of tons of structural shapes will be used.

Pittsburgh is undergoing a building boom such as it never had before, and fabulous prices are being paid for realty on prominent business streets. Mr. Frick, Mr. Oliver, Mr. Peacock and other large steel manufacturers who have large holdings of stock in the Carnegie Company have been heavy investors in real estate in Pittsburgh, and are erecting modern buildings which will use many thousand tons of material in their construction and will put millions of dollars in circulation. In all respects Pittsburgh is more prosperous now than ever before in her history.

The strike at the blast furnaces of the Buffalo-Union Company at Buffalo, N. Y., is over.

Trade Publications.

The Oliver Universal Saw Bench.—The American Machinery Company, Grand Rapids, Mich., have just issued an illustrated pamphlet which gives very full details of the construction, special features, management and uses of the Oliver Universal saw bench, recently illustrated and described in our columns. Few catalogues enter so minutely and intelligently into details as this publication. It is the work of a literary as well as a mechanical expert.

Molding Machines.—The Adams Company, Dubuque, Iowa, have just issued their catalogue No. 5, which treats of the Farwell molding machines. These comprise the Farwell molding press, the Farwell Universal molding machine and the Farwell Automatic molding machine. The molding press is the simplest form of machine, but is adapted to a great variety of work, and is shown in a number of forms, both stationary and portable. It has an adjustable horizontal lever, with which a 135 pound man can exert a pressure of two tons on the mold without muscular effort by simply leaning his weight on it. The Universal molding machine may be used as a plain molding press, a combined molding press and flask lifter, or as a combined molding press and stripping plate machine. These different uses are fully illustrated. The automatic machine is designed to make a complete snap mold by a few rapid but easy motions by the operator. In connection with this machine is shown a system of making multiple molds, in which snap molds are built up in vertical sections with one pouring hole at the top, the height being regulated by convenience in pouring. This facilitates the work of turning out large quantities of small castings. Illustrations are given of such multiple castings in 8 to 11 sections. Much other interesting information is given relative to molding.

Ford Automatic Boiler Cleaner.—The Ford Automatic Boiler Cleaner Company, 804 Carleton Building, St. Louis, are distributing an illustrated catalogue which treats of the device manufactured by this company. It is a mechanical boiler cleaner, designed to operate on the surface of the water in the boiler, and consists of a double action skimmer, employed in connection with a blow off pipe. The impurities brought to the surface by the boiling water are intercepted by the four flanges of the cleaner and carried upward by siphon pressure into a drum for blowing off. The catalogue contains a number of testimonials as well as a great variety of interesting information relative to mechanical matters.

Crucible Steel.—A very handsomely printed and illustrated export list has been issued by the Crucible Steel Company of America, descriptive of the tool steel, special shapes, cutlery steel, drill rods, tool steel wire, cold rolled sheets and strips, spring steel, file steel, machinery steel, saw plates, agricultural steels, springs and tools made by this great consolidation.

Public Support of Trade Schools.

An interesting departure recently has been made by the public school authorities of Springfield, Mass. Trade classes in plumbing and tool making have been started in connection with the public school system of the city, and are paid for by the public funds and superintended by the City Superintendents of Schools. This is probably the first instance in which a definite trade education had been provided in connection with the public school system of any city in the United States, and the venture will be watched with considerable interest by those interested in the industrial training of American boys. Should the Springfield experiment prove successful there is every reason to expect that the example will be followed in other cities. Naturally the labor unions will be arrayed against this practice, and it is quite possible that their influence may be sufficient to prevent its wide adoption. Nevertheless the principle is a good one.

A remarkably quick piece of engineering work was accomplished in New York City this week in the change

of motive power of the Broadway car line from cable to underground electric traction. The last cable car passed over the Broadway road at 9 o'clock on Saturday night and at 7 o'clock on Monday morning electric cars were running over the whole line from the Battery to 146th street. It took just 34 hours to make the complete change in motive power.

PERSONAL.

Samuel Jackson has been appointed master mechanic of the Valley mill of the Republic Iron & Steel Company, Youngstown, Ohio, in the place of Jacob M. Farris, who has entered the employ of the Youngstown Iron, Sheet & Tube Company.

W. H. D. Totten, Jr., representative of the Carnegie Steel Company in the Cincinnati district, has been appointed manager of sales in that district for the Illinois Steel Company. Mr. Totten will continue to act in his former capacity for the Carnegie Company.

M. P. Sayce, for 25 years identified with the New York steel rail trade, some time since accepted the post of London agent of the Dominion Iron & Steel Company, Limited. Mr. Sayce has now opened offices at 145 Cannon street.

O. J. Massot, who has been identified with the pig iron and coke trade of the West for over 20 years, has associated himself with De Camp Brothers & Yule of St. Louis.

Henry Butler has resigned the position of superintendent of the Shenango Furnace, at Sharpsville, Pa., to enter the employ of the Youngstown Iron, Sheet & Tube Company at Youngstown, Ohio.

I. L. McCord has resigned as vice-president of the Maywood Foundry & Machine Company, Maywood, Ill., and H. W. Boies has been elected to fill the position.

George T. Robinson, superintendent of the coke works of the Cambria Steel Company in the Connellsville region, has resigned and will be succeeded by A. R. Potts.

J. C. McDowell, second vice-president of the Philadelphia Company at Pittsburgh, has resigned and has been made general manager of the J. M. Guffey Petroleum Company, Beaumont, Texas.

Hans Renold of Manchester, England, the well-known inventor and manufacturer of driving chains which bear his name, is now in this country.

A. C. Kloman, manager of the National Steel Company's blast furnace at Sharon, Pa., has resigned to accept a similar position at Carnegie, Pa. B. McGuigan has been appointed to succeed Mr. Kloman.

Alan W. Wood of the American Sheet Steel Company, Pittsburgh, will sail for Europe early in June.

John A. Sutton, for 26 years with the La Belle Steel Company, Park, Bro. & Co., Limited, and the Park Steel Company, Pittsburgh, has been elected secretary of the St. Clair Steel Company and also of the St. Clair Furnace Company, with offices in the Empire Building, Pittsburgh.

Charles Crowther has been appointed superintendent of the Niles Furnace of the National Steel Company, at Niles, Ohio.

Millard Hunsicker, who has been the general foreign agent of the Carnegie Steel Company, with headquarters in London, arrived in this city on Saturday last to take a part in the discussion of the organization of the foreign business of the United States Steel Corporation.

Clement A. Griscom, president of the Society of Naval Architects and Marine Engineers, announces that the advancement of Rear-Admiral Bowles to the rank of Chief Constructor of the Navy has made it necessary for him to tender his resignation as secretary and treasurer of the Society. Naval Constructor W. L. Capps has been elected.

W. H. Foster, secretary and treasurer of the New Process Galvanizing Company, Niles, Ohio, returned from Europe on the "Teutonic." While abroad he attended the meeting of the Iron and Steel Institute in London.

HARDWARE.

IN connection with the coming together under common management of many manufacturing interests there is, so far as the pleasure of the trade in transacting business is concerned, a real loss. There has been a sundering of personal relations, the outgrowth of dealings extending in many cases through years of more or less close association, with the result of having a mutual understanding of methods and circumstances which contributed much to the smoothness and good feeling with which business was transacted. When, however, the manufacturers have come together in an imposing corporation there has been to a large extent a recasting of the *personnel* of the force by whom the products are marketed, and those with whom the trade had established a more or less real acquaintance have in many cases taken positions which removed them from their former associations, while in others, and not infrequently, their active identification with the enterprise has ceased altogether. The result of this is that new men in many of the corporations are in charge of the selling departments, and the merchant finds it necessary to re-establish such personal relations as may be feasible. This sundering of old ties is accepted by many as one of the minor penalties connected with the progress of the times.

It is not, however, an easy thing to re-establish personal relations at all similar to those which have existed. As a general rule the larger the concern the more the individual is lost sight of, and the personal contact is more difficult and limited in many ways. The dealings are often with a department rather than an individual. A rubber stamp takes the place of a well-known signature. The transaction of business is regulated strictly by rule. There is little opportunity for favor. Things move along with the precision of a well ordered mechanism. Inquiries are answered, orders accepted and shipments made in accordance with a carefully devised system. While forms of courtesy are observed, the purchaser feels all the while that he is dealing with a corporation, the personal element being reduced to a minimum.

This condition of things is not without its advantages. Among these is the fact that the large corporations are, as a rule, conducting business as it should be conducted, on business principles, and are thus correcting some of the abuses which have long existed in the trade. They are putting an end to the old and mischievous practice of permitting buyers to place vague and unspecified orders with the privilege of canceling them if the market should go the wrong way, and of taking the last Bolt or Nail if the price should advance. It used to be considered a grievance by the jobbing trade if the manufacturer advanced his prices without giving them an opportunity to cover their requirements liberally, but this unbusinesslike procedure receives no countenance from the large corporations. Orders are not to be canceled except by the consent of both parties. In case of scarcity orders are to be executed in the order of their receipt. To entitle the purchaser to the cash discount payment must be within the specified time. It is strict, straightforward business from first to last. This is precisely as it should be. The influence of these reformed methods should be felt through the trade, and the dealings of all manufacturers and all merchants should be toned up accordingly.

In another column will be found a number of communications on the Builders' Hardware question which are well deserving perusal by all who desire a correction of the existing and confessedly unsatisfactory and unreasonable conditions. The subject is one which at this season will naturally be brought prominently and forcibly to the attention of the trade, and many retail merchants will have impressed upon them the difficulty of securing orders for supplying the Hardware used in buildings going up in their town, and the necessity of doing something to protect themselves. The letters which we publish not only describe the state of things in different parts of the country, but indicate that retail merchants are moving for their own protection, sometimes in the way of simple protest, but also in organized effort to defend their interests and regain a class of trade which has largely been taken from them.

Condition of Trade.

THERE is little diminution in the volume of business so far as the small trade are concerned. They are for the most part doing a good business and replenishing stocks freely when they become depleted. The demand upon the jobbers keeps them fully occupied, especially in view of the difficulty in obtaining certain kinds of goods which are scarce. The volume of business, however, is somewhat affected by the advance of the season. Manufacturers are not receiving so many orders, but the requirements of the trade are such as to keep them fairly busy. They have no objection to experiencing a lessening in the demand, which will give them an opportunity to get things in shape and perhaps accumulate something of a stock. The feeling among the trade is confident and the tone of the market on the whole is excellent. It is anticipated that the present large consumption will continue unless there should be some unexpected disturbance. Building enterprises have been projected liberally in most parts of the country. Hardware merchants are considering what they can do to secure their share of the benefits resulting from such activity. This gives special point to the discussion which is now going on in regard to the condition of things in the Builders' Hardware line. The changes in price are few and comparatively unimportant. There is little if any speculative buying. The competition which is developing in practically all lines which have been supposed to be controlled by pools or consolidations is one of the marked features of the situation, which indicates that there will be a greater opportunity for skill in the purchase of goods than there has been of late. While the trade is in an eminently satisfactory condition there are indications that summer, with its comparative quiet, is not far off.

Chicago.

(By Telegraph.)

Business in the Hardware trades keeps well up to its recent large volume, and jobbers are as greatly harassed as before by the difficulty experienced in securing a sufficient supply of goods. Many of the orders received are thus occasioning double the usual correspondence, on the one hand urging manufacturers to hasten shipments, and on the other apologizing to customers for unavoidable delays. Even the demand for Barb Wire and Poultry Netting keeps up in excess of supply, although so late in the season. New orders are larger than cancellations. Several days of exceedingly cold weather have checked the demand for strictly summer goods, but the decreased business in these lines has had no effect on the activity of general trade. Tin Plate is in short supply, except in the case of

houses who placed liberal orders some time since on which shipments are now being received. New orders are not yet receiving satisfactory attention. Continued shortage is experienced in Sheet Metal Goods, such as Tinware, Enameled Ware, and products manufactured from Galvanized Sheets, while all Wire Goods are fully as scarce as they have been. Advance orders for fall shipments have been placed quite freely in many lines. Dealers are ordering almost everything for which advance orders are taken, apparently feeling confident that prices will be maintained.

NOTES ON PRICES.

Wire Nails.—The demand for Wire Nails is not so active, and the mills are making deliveries more promptly. A good volume of business is being done, however. The market is firm at former quotations, which are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots.....	\$2.30
To jobbers in less than carload lots.....	2.35
To retailers in carload lots.....	2.40
To retailers in less than carload lots.....	2.50

New York.—A slight falling off in local demand has been apparent during the week. This is attributed partially to the strikes of the various trades. Quotations are as follows:

To retailers, carloads on dock.....	\$2.53
Small lots at store.....	2.60

Chicago, by Telegraph.—The demand for Wire Nails is reported by manufacturers as keeping up quite well, although the volume of business is not so large as it has been. Jobbers are not yet receiving satisfactory supplies in all cases. Prices are unchanged, as follows: Carload lots, \$2.45 and small lots, \$2.55, with an occasional concession to \$2.50 to the best traders.

Pittsburgh.—Demand has fallen off very considerably the last week or two for Wire Nails, but is still large enough to keep the mills fully employed. There is no difficulty now in getting prompt shipment of Nails. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots.....	\$2.30
To jobbers in less than carload lots.....	2.35
To retailers in carload lots.....	2.40
To retailers in less than carload lots.....	2.50

Cut Nails.—At the monthly meeting of the Cut Nail manufacturers the prices for the month of May were reaffirmed for June. While the cost of manufacture has been increased by higher prices of material, it was not considered wise to lessen the differentials between Wire and Cut Nails by advancing the price of the latter. The market is represented by the following quotations, f.o.b. Pittsburgh, plus the actual freight to point of destination, terms 60 days, or 2 per cent. off in 10 days:

Carload lots	\$2.00
Less than carload lots.....	\$2.05 to 2.10

New York.—The demand for Cut Nails continues in about the usual proportion. Occasional inequalities in prices are reported. New York quotations for carload and less than carload lots are based on the above prices, to which Pittsburgh freight has been added:

Carload lots on dock.....	\$2.13
Less than carload lots on dock.....	2.18
From store	2.25

Chicago, by Telegraph.—Cut Nail trade is good, the demand keeping up to its usual standard. Jobbers quote small lots at \$2.35.

Pittsburgh.—The slight unevenness in price of Cut Nails referred to in this report last week continues. There is a fair amount of business being placed, but not as large as for some time. We quote carload lots at \$2, and less than carloads \$2.05 to \$2.10, f.o.b. Pittsburgh, terms 60 days, less 2 per cent. off for cash in 10 days.

Barb Wire.—Manufacturers are more prompt in making shipments of Barb Wire. The mills are busy filling contract orders and caring for the new business, which continues in good volume. Quotations are as follows,

f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots, Painted.....	\$2.60
To jobbers in carload lots, Galvanized.....	2.90
To jobbers in less than carload lots, Painted.....	2.65
To jobbers in less than carload lots, Galvanized....	2.95
To retailers in carload lots, Painted.....	2.70
To retailers in carload lots, Galvanized.....	3.00
To retailers in less than carload lots, Painted.....	2.80
To retailers in less than carload lots, Galvanized..	3.10

Chicago, by Telegraph.—The phenomenal trade in Barb Wire has not yet slackened. Factories are still three or four weeks in arrears in shipments. Jobbers are having more annoyance in this line than in most others because their customers are so urgent for the prompt filling of their orders. Carload lots are held at \$2.75 for Painted and \$3.05 for Galvanized. Less than carloads are quoted at \$2.85 and \$3.15, respectively, with shading of 5 cents to best buyers.

Pittsburgh.—While new tonnage in Barb Wire is not as large as it has been, the mills are fully employed on old contracts and on new orders. There is very little difficulty now in getting prompt shipments of Barb Wire. For domestic trade we quote: Galvanized Barb Wire, \$2.90 in carload lots to jobbers, and Painted, \$2.60. Terms, 60 days net, 2 per cent. discount for cash in 10 days, f.o.b. Pittsburgh.

Plain Wire.—There appears to be no falling off in the demand for Plain Wire. Manufacturers are still behind on deliveries. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. off for cash in 10 days:

	Base sizes.	
	Plain.	Galv.
To jobbers in carload lots.....	\$2.25	\$2.65
To jobbers in less than carload lots.....	2.30	2.70
To retailers in carload lots.....	2.35	2.75
To retailers in less than carload lots.....	2.45	2.85

The above prices are for the base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances.

Plain Fence Wire Advances (Catch Weights).

Nos.	Base.	Galvanized.
6 to 9.....	\$0.05 advance over base.....	\$0.40 extra.
10.....	.10 " " " ".....	.40 "
11.....	.10 " " " ".....	.40 "
12 and 12½.....	.15 " " " ".....	.40 "
13.....	.25 " " " ".....	.40 "
14.....	.35 " " " ".....	.40 "
15.....	.45 " " " ".....	.75 "
16.....	.55 " " " ".....	.75 "
17.....	.70 " " " ".....	1.00 "
18.....	.85 " " " ".....	1.00 "

For even weight bundles, 50 pounds and over, 5 cents per bundle advance on above.

Chicago, by Telegraph.—Manufacturers are about a month behind on deliveries on Plain Wire. This keeps the jobbing and consuming trade in a continued condition of unsatisfactory deliveries. Carload lots are still held at \$2.40, base, and small lots from stock at \$2.50, with an occasional shade to \$2.45.

Pittsburgh.—The heavy demand for Plain Wire noted in these columns for some weeks continues, and is keeping the mills loaded to the guards with tonnage. Prices are firm, and for domestic trade we quote:

Plain.	
To jobbers in carload lots.....	\$2.25
To jobbers in less than carload lots.....	2.30
To retailers in carload lots.....	2.35
To retailers in less than carload lots.....	2.45

Galvanized Wire up to No. 14 is 40 cents advance on Plain; Nos. 15 and 16, 75 cents advance, and Nos. 17 and 18, \$1 advance. Terms are 60 days net, with 2 per cent. off for cash in 10 days, f.o.b. Pittsburgh.

Cast Iron Soil Pipe.—The manufacturers of Cast Iron Soil Pipe and Fittings, who have a strong organization and are working through a commissioner, have subdivided the country into territorial districts, in which prices and terms have been fixed for the regulation of sales. The arrangement is said to be working satisfactorily, so far as securing uniformity of prices is concerned.

All carload shipments are delivered by the manufacturers except in some specified instances, where in remote territory a limit in the amount of delivery charges

is determined. Less than carloads are without exception f.o.b. foundry.

The following discounts apply to the principal kinds of Pipe and Fittings in carload lots to the territories more particularly referred to below:

2 to 6 inch Standard Pipe.....	65 and 5 %
2 to 6 inch Extra Heavy Pipe.....	70 and 10 %
2 to 6 inch Standard and Extra Heavy Fittings,	75 and 10 and 5 %
7 to 15 inch Standard and Extra Heavy Pipe and	
Fittings	65 %

The above discounts apply in the following territories, concerning which particulars in regard to freights, &c., are given:

The Eastern territory includes New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia and West Virginia, east of the Alleghany Mountains, and the New England States. On carload lots direct to jobbers' customers the same prices apply and actual freight from point of shipment to destination will be allowed. On carload shipments to points on Long Island other than Brooklyn, Brooklyn freight only will be allowed. On shipments direct to jobbers' customers in New York (outside Greater New York) actual freight to destination is allowed, while similar shipments into New England States carry the same concession, except that no allowance is made in excess of freight from point of shipment to Portland, Maine.

In what may be termed central territory, Pittsburgh, Cincinnati, Cleveland, Columbus, Dayton, Mansfield, Toledo, Detroit, Lansing, Chicago, Decatur, Peoria, Milwaukee, Louisville, Indianapolis, Muncie, Union City, Fort Wayne and St. Louis are specified as delivery points, the same conditions also applying to Pacific Coast terminals, both Northern and Southern, except that only freight in excess of \$10 a ton is allowed.

In Southern territory it is provided that shipments into Tennessee, North Carolina, Georgia, Florida, Alabama, Mississippi and Louisiana actual freight up to and including \$3 per ton from the Birmingham (Ala.) district is allowed, while for Arkansas, Indian Territory, Oklahoma, Texas, New Mexico, Arizona and Mexico only New Orleans or Memphis freight is allowed.

Shipments to Montana, Idaho, Wyoming and Oregon points, except Portland, and Washington points, except Seattle and Tacoma, freight is allowed in excess of Chicago rates.

To Dubuque, Cedar Rapids, Lacrosse, Duluth, St. Paul and Minneapolis the following schedule of discounts prevail—viz.:

2 to 6 inch Standard Pipe.....	65 %
2 to 6 inch Extra Heavy Pipe.....	70 and 5 %
2 to 6 inch Standard and Extra Heavy Fittings,	75 and 10 %
7 to 15 inch Standard and Extra Heavy Pipe and	
Fittings	60 and 10 %

To Wichita, Kansas City, St. Joseph, Omaha, Lincoln, Sioux City and Fort Dodge discounts are as follows:

2 to 6 inch Standard Pipe.....	60 and 10 %
2 to 6 inch Extra Heavy Pipe.....	70 and 2½ %
2 to 6 inch Standard and Extra Heavy Fittings,	75 and 5 %
7 to 15 inch Standard and Extra Heavy Pipe and	
Fittings	60 and 5 %

In this territory all freight on car lots is allowed except Wichita, where only freight in excess of \$2 a ton is rebated. On carload shipments direct to jobbers' customers in sections named above, except Southern territory, the jobber can elect to purchase at the discount of any jobbing point in adjacent territory that he may think most to his interest, with its accompanying freight allowance, definitely specifying the jobbing point when the order is placed, and when the freight is less or the same as to such jobbing point actual freight only can be allowed to destination. Where freight to destination exceeds that to the jobbing point selected the actual freight only or to the said jobbing point can be allowed.

British Columbia and Canada and all other export points except the Hawaiian Islands, Cuba, Porto Rico and Mexico, are declared open markets and not considered by members in their allotment.

In the West, on sales to plumbers, prices are to be at least 5 per cent. higher than to jobbers. In the East, a provisional differential discount of 10 per cent. is established between prices quoted to jobbers and plumbers. A report must be made to the commissioner of all sales made at lower prices. It is provided that for ship-

ments or delivery from store the following prices will be charged—viz.:

2 to 6 inch Standard Pipe.....	65 %
2 to 6 inch Extra Heavy Pipe.....	70 and 5 %
2 to 6 inch Standard and Extra Heavy Fittings,	75 and 10 %
7 to 15 inch Standard and Extra Heavy Pipe and	
Fittings	60 and 10 %

Conductor Pipe, Eave Trough, &c.—Advances were made on Conductor Pipe, Eave Trough, &c., May 20, as follows: In Eastern territory, 5 per cent. on Conductor Pipe and 7½ per cent. on Eave Trough; Central territory, a uniform advance of 5 per cent., and in Southern territory a 2½ per cent. advance on both Pipe and Trough.

Cordage.—The moderate demand for Rope has resulted in some irregularity in prices. The accumulation of stocks in manufacturers' hands has caused a desire to make sales, even at concessions on quotations. The market is stronger on Manila than on Sisal Rope. Sisal Rope is held at 7¼ to 7½ cents per pound, according to quantity, and Manila Rope at 10¼ to 10½ cents.

Binder Twine.—Business in Binder Twine is comparatively light. While Eastern manufacturers are naming 8 cents per pound for Sisal and Standard Twine, in carload lots, jobbers who bought early in the season at low prices are making lower quotations. General quotations, with a rebate of ¼ cent in carload lots, f.o.b. Eastern factories, are as follows:

White Sisal, 500 feet per pound.....	8¼c.
Standard, 500 feet per pound.....	8¼c.
Manila, 600 feet per pound.....	10 to 10¼c.
Pure Manila, 650 feet per pound.....	11¼c.

Glass.—Conditions of the domestic Glass market remain unchanged. The local market is quiet but firm at jobbers' previous quotations, which are as follows:

	Discount.
Less than car lots.....	80 and 20 %
Carloads	85 and 5 %
3000 boxes	87 %

These prices are for single or double strength, and cover the entire country.

It is understood that the jobbing trade throughout the country are about to take action to have the recent Treasury decision set aside, regarding the new classification of sizes upon which duty is to be levied upon imported Glass. The decision also allows the Government to collect duties upon Glass imported for a year past, and which has, of course, gone into consumption. As the matter now stands it would entail great loss upon concerns who have imported large quantities of Glass. It is reported that the Belgian Window Glass strike is ended, and that the workers have given up the struggle, which has lasted over eight months.

Paints and Colors.—**Leads.**—Demand for White Lead in Oil has been fairly active during the week. No change in quotations has taken place, and are as follows: In lots of 500 pounds and over, 6½ cents; in lots of less than 500 pounds, 7 cents per pound.

Oils.—**Linseed Oil.**—In the local market the combine that is quoting 59 cents for out of town brands of Raw Oil is taking the bulk of the large orders. Independent mills are accepting orders for 5 to 10 barrel lots at this price, and are quoting 60 cents for large lots. City Raw is quoted at 60 to 61 cents, according to quantity. Boiled Oil is 2 cents per gallon advance on Raw.

Spirits Turpentine.—The Turpentine market has remained in about the same condition during the week. In the South there was liberal buying to fill May contracts. Heavy receipts, however, kept the market from advancing. In the local market the demand was moderate, with prices steady, according to quantity, at 35½ to 36 cents per gallon for Southern, and 36 to 36½ cents for machine made barrels.

The works of the Pittsburgh Chain Company, on Liberty avenue, Pittsburgh, Pa., were destroyed by fire on Tuesday night. It should be noted that this concern are not in any way identified with the Standard Chain Company, who have large Chain works in the Pittsburgh district, all of which are in full operation and making prompt shipments.

Notes on Foreign Trade

BRITISH LETTER.

FROM OUR SPECIAL REPRESENTATIVE.

Offices of *The Iron Age*. HASTINGS HOUSE,
NORFOLK STREET, LONDON, W. C.

The London Office.

MAY I draw the attention of any of your readers who are visiting England to the fact that the London office of *The Iron Age* is now in full swing. I shall be glad to receive all American visitors and help them as far as I can by introducing them to possible customers or agents. Letters may be addressed here, and generally I want to make myself as useful as I possibly can to American visitors. It is interesting to observe that, although the office has only been open a fortnight, already several Americans have called, and it has been a pleasure to me to give them suitable introductions.

Bedsteads.

A very considerable portion of British Hardwaremen handle Bedsteads. One or two American agents have already tried to sell American Bedsteads over here, but without much success. This has been due to the effective organization of the Bedstead Association. This association was founded in 1892 for the purpose of protecting the English Bedstead trade. Out of 60 manufacturers in the trade, no less than 95 per cent. joined the Alliance. The fundamental idea was that prices were to be regulated, *pro rata*, upon the cost of production. The workmen were called in and a bonus of 5 per cent. upon every 10 per cent. increase in cost was given them through their trades union. The position of the Alliance for some time seemed to be impregnable, but during the past two years, with the marked increase in the cost of raw materials, prices have gone up substantially. It was then discovered that as prices had gone up, no matter for what reason, the workmen claimed their 5 per cent. bonus. This led to a series of difficulties which went far to break up the Alliance. In addition, it was agreed that any manufacturing firms seceding from the Alliance should be "struck." The workmen were guaranteed half of their strike pay from the manufacturers themselves. Recently there have been several secessions, with the result that the manufacturers in the Alliance got tired of paying out checks for strike pay, and were equally affrighted that the seceders were capturing their trade. The net result is that the Bedstead Alliance is now as non-existent as Hans Breitman's celebrated party. Competition has been let loose again, and many manufacturers complain bitterly that they are compelled to sell under cost price. The London agents now fail to sell as readily as was their wont, and it looks as if before very long the English Bedstead trade will be thrown back into the state of chaos in which it was prior to 1892. I was speaking only yesterday with a prominent Bedstead agent, and he told me quite frankly that trade in English Bedsteads had become so unsatisfactory that he was looking out for another agency. If any American Bedstead manufacturer would again like to try his hand at the English trade I shall be very happy to put him into contact with one of the most successful salesmen in London. It is impossible to say what the chances of success are in such a venture. American patterns are attractive and strike the eye, while recently there have been no new English patterns put upon the market. But the prices must be low, or trade is out of the question. Still, the experiment may be worth trying, and I know others besides the gentleman in question who would gladly consider any good business proposition.

American Enameled Ware in England.

Some little time ago a note of mine on the question of American Enameled Ware in England in connection with an important firm of Hardware factors brought a number of communications from American manufacturers. I went the other day to ascertain what had been

the result, and was disappointed to be told that both prices and quality were "not in it" with German and

Austrian competitors. I suggested that surely the quality was better than the German, but the answer was decisive, that while the quality of the American article was inferior, the price was much higher. I place some reliance upon the judgment of the gentleman in question, and therefore respectfully suggest to American Enameled Ware manufacturers that they had better look into it and see if something cannot be done.

A Surprise.

Sheffield Cutlery buyers have always had it their own way at the usual Antwerp sales of Ivory. Prices in England seemed to be advancing in a healthy way by from \$10 to \$12 per hundredweight. At Antwerp, however, American buyers brought off a *coup d'état*. They wanted practically the whole of the Ivory in the market, and bought the bulk of it. Teeth which were valued at the previous sale at \$190 per hundredweight fetched \$270, and in all qualities and grades there was a striking advance in prices. The result of this is that Sheffield cutlers are compelled to meet and revise prices. Does it also mean that American makers intend for the future to compete more severely with Sheffield's pet industry?

The Indian Trade.

I have repeatedly commented upon the importance to Americans of cultivating the Indian trade. Recent advices from India point conclusively to the growth of trade done by the United States with India. In glancing over the returns of the trade of Calcutta for the year 1899-1900, I am surprised to see that the trade done with America through the port of Calcutta amounted in that year to no less than \$27,500,000, as compared with \$18,000,000 in the year 1896-1897. Of course, a large proportion of this trade consists of purchases by America from India, but upon the other hand, notwithstanding the famine and the plague, American Hardware is being bought in much larger quantities. Not only, however, is America being beaten by Germany and Austria in England in Enameled Ware, but Austrian and German Enameled Ware is the most popular in India. Germany holds first place among European countries in the export of Hardware, the trade chiefly consisting in Padlocks and the commoner kinds of Cutlery. Of the imports of India $6\frac{1}{2}$ per cent. consisted of metals, $2\frac{3}{4}$ per cent. of machinery and 6 per cent. of oils. As an indication of what India requires in the way of metal goods, I have abstracted from the British returns India's purchases of metals and metal manufactures. American exporters will, I think, be repaid by studying the figures. I have taken the month of April in one column, and in a second column the first four months of this year. I append it herewith. The currency is worked out at \$5 to the £1:

British Exports to India.

	April, 1901.	First four months 1901.
Copper (unwrought).....	\$14,295	\$46,965
Copper (wrought).....	59,715	299,510
Cutlery	21,345	99,960
Hardware	78,670	296,225
Iron (Bar, Angle, Bolt and Rod).....	76,695	270,790
Iron and Steel (railroad of all sorts).....	561,535	2,067,450
Wire of Iron or Steel and manufactures thereof, except Telegraph Wires.....	15,075	141,820
Hoops	42,020	208,160
Sheets and Boiler Plates.....	8,130	62,330
Galvanized Sheets.....	281,815	1,137,820
Tin Plates and Sheets.....	107,225	633,855
Cast and Wrought Iron (except Ordnance).....	399,605	1,689,660
Steel (unwrought).....	111,595	472,625
Manufactures of Steel or of Steel and Iron combined	165,090	596,840
Lead (Pig and manufactures of).....	80,890	386,750
Steam Engines:		
Locomotives	167,990	540,610
Agricultural	4,070	19,350
Other descriptions.....	100,740	362,790
Machinery and mill work or parts thereof (not Steam engines):		
Agricultural	11,085	29,635
Sewing Machines.....	14,490	79,395
Mining	46,500	126,870
Textile	287,205	1,289,195
Other descriptions.....	381,695	1,321,770

Corrugated Iron for Denmark.

The wideawake merchant will pick up hints from all sorts of unexpected quarters. In a law case, which was

tried last week, I notice that a Liverpool house sought to recover from a British Galvanized Iron manufacturing concern the sum of \$720 for breach of contract. It appears that in March, 1900, the plaintiffs made a contract with the defendants for a supply of a quantity of Galvanized and Corrugated Iron Roofing for one of the State railways in Denmark. The plaintiffs averred that the sheets were not of the depth of corrugation, weight and gauge specified. In the first instance, therefore, the whole of the sheets were rejected, but subsequently the matter was compromised by a reduction of \$720 less than the contract price. The defendants say that they were asked to supply 20 B. G. (Birmingham Gauge), and that they supplied 20 B. W. G. (Birmingham Wire Gauge), which they allege is the same thing. Be that as it may, the point to be noted is that the railways in Denmark appear to be heavy purchasers of Corrugated Iron, a fact which may be of interest to American manufacturers in this line.

ARGENTINE TRADE.

Our export trade with Argentina at present is not as satisfactory as it has been, a condition chargeable to a variety of causes which curtail the purchasing power of that country. One of these is the price of wool, now 65 to 70 per cent. lower than last year; a condition that has already caused some failures in the Republic. Another feature of the situation is the demand there for a protective tariff. Still another cause is the state of their meat exports to Europe, which have markedly decreased in consequence of the prevalence of a foot and mouth disease among beef cattle and sheep in Argentina, which broke out a year ago, greatly reducing their shipments on the hoof to Europe. In a measure refrigerated beef is taking the place of shipments on the hoof, but much time will be required to make the necessary changes involved in the new method of shipment. Among their leading exports are wool, meat, wheat, maize and linseed, the principal importations from the United States being Agricultural Implements, General Hardware, Kerosene and Lumber. Last year the United States shipped them large quantities of steel in the form of Ship Plates, Bars, Angles and Tees for general construction purposes, but now most of this trade is handled by Germany and Belgium, who quote lower prices.

CUBAN TRADE.

The head of a leading export house in the Cuban trade, back from a business visit to that island, refers to business conditions there as waiting on the settlement of important political questions. The low price of tobacco and sugar, the main articles of export, naturally reduces the buying power of the people there, and so for the present restricts imports from the United States and elsewhere.

ASPHALT READY ROOFING.

ASPHALT READY ROOFING COMPANY, 136 Water street, New York, are manufacturers of Trinidad Asphalt products, among which is the Arrow brand of Ready Roofing, by which is understood two thicknesses of single ply, saturated felt cemented together with asphalt and covered on the outer surface with asphalt and various sizes of gravel. The Arrow brand is made in Nos. 1 and 2, the latter weighing 120 pounds to the roll, while the No. 1, having a somewhat finer grit, but otherwise the same, weighs but 80 pounds to the roll, both being the same in price, per roll of 110 square feet. The point is made that, owing to this difference in weight, it is much more suitable for the export trade on account of the saving in freight, the custom for domestic trade in suitable quantities being to deliver the goods at points where the freight is not excessive. Another feature is that the lighter roll can be shipped without crating, while the heavier roll will not be received as in shipping order unless crated, which further adds to the freight charge. The No. 2 brand is well suited to mills and plants subjected to sulphurous

and other corroding gases. This company also make Asphaltum Paints and Varnishes, Trinidad Asphalt Roofing Cement, and similar goods for roofers.

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SHOW WINDOW DISPLAY.

This Department is to give information in regard to the use which may advantageously be made of show windows of Hardware stores, with practical suggestions in regard to the arrangement and display of goods and other methods of attracting business.

The trade are invited to contribute information in regard to methods which have proved satisfactory, with descriptions of attractive displays. Inquiries also are solicited, to which careful attention will be given.

HARDWARE STORE WINDOW DISPLAY.

PRIZE ESSAY.

BY W. M. WOODWARD.

Almost any kind of advertising effort will show results. Window advertising is the least expensive, and the results are most immediate. Two per cent. of gross sales would be a conservative estimate for newspaper and circular advertising; which means \$500 yearly on a \$25,000 business. The window advertising will cost practically nothing, as at least cost can be realized out of any of the goods which might become shop worn, and no goods at all should be damaged if windows are properly secured against flies and the trimming changed every week.

THE NEWSPAPER ADVERTISEMENT.

Newspaper, circular and window advertising should be worked in conjunction. The combined result is best. We are unconsciously directed by impressions. The saying that "We are creatures of habit," is simply in line with the psychological fact that impressions once formed in our minds are constantly recurring when anything kindred is under consideration. What we wish to do is to place psychological sign boards of our business in the minds of the public. The newspaper may make a faint impression, and the window display clinch it, or *vice versa*. They help each other.

If you will write a newspaper advertisement each week and trim your windows each week, and never fail, doing the one will make the other easier. The advertisement suggests the window trim and the window trim the advertisement. This may be hard work for the first six months, but it will gradually become easier, and soon your material for advertising, both newspaper and window, will exceed your space. The passing public will come to recognize the regular changes and look for them.

MAKE GOODS WINDOWS.

As far as possible make "goods windows." Freak windows may be all right occasionally, as during carnival or fair time, but they take a great deal of time, destroy goods and bring no immediate results.

Use neat display cards. They help rivet the impressions you are striving to make. Do not put prices on trade-mark goods, or standard brands, which are carried elsewhere in your city. Your competitors will study your windows, and if your prices are high they will use them against you. If the prices are low, they may go still lower, and the tendency will be to reduce the profits on good staple lines that you all carry. Prices are, of course, always attractive, and may be put on lines of which you control the sale or on any line where qualities vary and the make is not known. Besides prices, display cards might describe new goods or make pointed suggestions. In a Builders' Hardware window a card might read, "Let us figure on your building bill."

CONSTRUCTION OF THE WINDOW.

As to the windows themselves the window seat should be quite deep, and not more than 15 or 18 inches high inside; the glass not being over 2 feet from the sidewalk. The entire window should be inclosed with Wire Cloth Screens, made in sections, and held in place by Buttons, one section being a Door on loose Pin Hinges. This will keep insects out in summer, and prevent pilfering of small articles. Sections can be removed at any time to admit articles too large to be taken through the

door. If the frames are made light and oil finished, they will obstruct the light very little, are easily cleaned, and will serve as a background for the trimming; though background trimming shuts off the light, and the effect of the window from the customer who has entered the store.

For the bottom of the window a frame, made in sections, for easy handling, raised about 6 inches at the back and slanting to the front, covered with black cloth, is very serviceable in displaying Tools, Builders' Hardware and small articles.

SHOW ONE LINE OF GOODS.

One line of goods at a time in a window is generally better unless the windows are very large. Large quantities of one article always attract attention. Few people would notice one only of a common, everyday article like a 10-gallon Carrying Can or Milk Cooler, but a window full of either of them in a graduated pile extending to the ceiling would cause any number of people to stop. My neighbor, the grocer, tells me that when he puts on the walk one or two watermelons, very few ask for them, but when he stacks up half a carload, every other man buys one. Thus a great many attractive window displays can be made by using quantities of common articles.

WINDOW DISPLAY BENEFICIAL TO WHOLE STORE.

A study and faithful practice of window trimming will lead to better store service in every way. You become more critical of each individual line as you take it up for display. You ask yourself if you are carrying the right quality in proper quantity, at the right price? In establishing your sign boards in the public mind you will see the more clearly how necessary also is intelligent, courteous and prompt service. This study will shake you out of the rut in which you may be working, you will read the trade journals, scan *The Iron Age* more eagerly for ideas, and come to realize that the prosperous merchant has no time for kicking against the inevitable; that the retailer cannot look to legislation for success, and if he is making a failure, the cause of it is in his own methods.

ONE LINE AT A TIME.

A large Hardware house in Southern Connecticut have a rather unique method of occasionally decorating their show windows. From time to time they purchase job lots of Hammers, Hatchets and Agricultural Wrenches and other articles and display one line at a time.

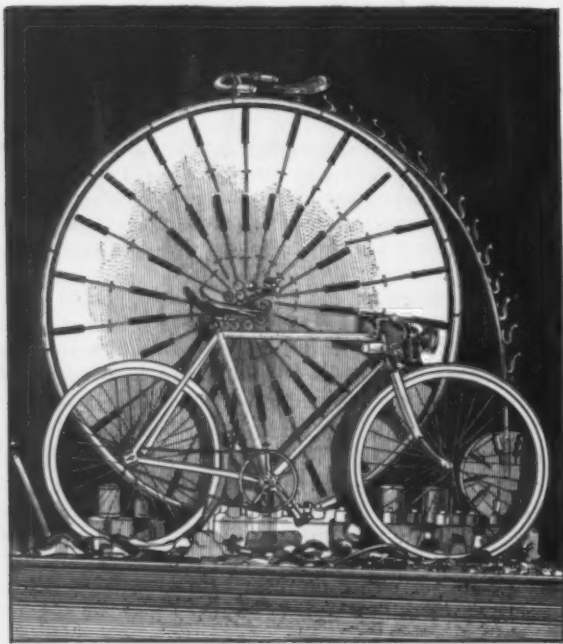
A window for one week is devoted to Hammers, it being piled full of them, arranged in attractive tiers with a ticket at the bottom, which is plainly marked, showing the price. After having run this line for a week the same thing is done with cheap Hatchets, which in turn are followed by Agricultural Wrenches. An attractive price is placed on each of these lines, with the result that a large number of articles are always sold.

A BICYCLE WINDOW.

The Bicycle of to-day was sharply contrasted to a wheel of 25 years ago in an attractive show window exhibit of the Marshfield Hardware Company, Marshfield, Wis. The machine of old design was placed in the back of the window, which is not a deep one. In front

of it was a most attractive white enameled up to date Bicycle. As shown in the illustration, the bottom of the window was filled with a variety of Sundries, such as always interest the wheelman.

The old model Bicycle was composed entirely of Bicycle Goods. Inflated inner tubes were used for the tire of the front wheel. The spokes were made of Bicycle Pumps, and the hub of Bicycle Bells. The backbone



A Bicycle Window Display.

consisted of a strip of light wood to which were attached Toe Clips. For handle bars a pair of modern design were used. The display was an attractive one and commanded considerable attention.

LORING COES & CO.'S WRENCH FACTORY.

A NEW factory, to employ 150 skilled workmen to start with, is to be built by Loring Coes & Co., at Worcester, Mass., to manufacture Wrenches in competition with the Coes Wrench Company. Both companies are controlled by members of the Coes family, and neither company up to this time have encroached on the territory of the other. Loring Coes & Co. at present are makers of Machine Knives, Shearing Blades, &c. The Coes Wrench Company are makers of Wrenches. Loring Coes & Co., when the new factory is erected, will make Wrenches in addition to the Knives.

The new plans have been kept secret, but the fact that Loring Coes & Co. are to build the new factory is acknowledged by the firm. W. H. Harvey, architect, 311 Main street, Worcester, Mass., has completed plans for the new building. The factory will be 145 x 50 feet, and will be two stories high. It will be constructed of brick and will be fire proof. Besides the main plant there will be three additional buildings, with a ground space of about 3500 square feet. The latter will only be one story high. The new factory will be built on the land already owned by Loring Coes & Co. adjoining their present plant on Mill street.

The capital of the company will be increased, but to how great an extent the company are not ready to state. The Wrenches that are to be manufactured, it is claimed, will be of the highest quality and embody new features. Several patents relating to important improvements, it is said, are already held by the company. Loring Coes & Co. propose to install new and improved machinery for the plant.

Loring Coes & Co. began the manufacture of Knives in 1830, and this month is the sixtieth anniversary of the invention of the Coes Wrench by Loring Coes. The proposed addition to their plant will about double its size.

Letters from the Trade.

Our readers are invited to discuss in these columns questions of trade interest connected with the manufacture or sale of Hardware. We shall be pleased to have a free expression of opinion on subjects deserving the attention of Hardware merchants and manufacturers.

Hardware Stores in Departments.

We invite advices from our readers in regard to the advantages and methods of conducting Hardware stores with different departments, as per the following inquiry from an enterprising New England house:

Kindly advise if you can put us on track of any party who makes a specialty of regulating Hardware stores in departments? Possibly you can give us information as to what people are running their business on this system.

We wish to be informed on this point, as we have an idea that we should like to regulate our store in that manner. Any information you can give us will be very much appreciated.

Nail Differentials as Between Jobbers and Retailers.

An Ohio merchant in touch with the market and well posted as to movements in trade thus refers to the Nail differentials:

Apropos of a squib in your journal as to the buying of Cut Nails by retailers and jobbers, of the manufacturers, and the differential formerly existing, we beg to say that the statement therein made that this differential had been practically withdrawn is as nearly correct as you can get at it. We hear this on all sides, and the billing of these goods from the various makers is sufficient verification. It is not only true as to the East, but is a fact as to our Western country. It cannot, of course, be otherwise than unsatisfactory to the jobber while quite agreeable to the general run of the retail buyers.

The lines are not only being badly stretched as regards Cut Nails, but are drawn close also in the Wire Nail market, as applied to those makers outside of the consolidation.

A Letter in Regard to Trusts.

From a well-known manufacturer we have this letter, which will be perused with interest:

I have been reading a Hardware merchant's rather hysterical paper on the subject of trusts. While pondering on the subject and saying to myself, "What monsters these trusts are, to be sure," my eye fell on the very next paragraph: "A communication was read from the X. Y. Z. Mfg. Company promising not to sell to department stores and catalogue houses, and a vote of thanks was given to them."

Ye gods and little apples, are combinations among manufacturers the only wicked trusts? Who put the screws on the X. Y. Z. Mfg. Company? Do they voluntarily choose to sell their products for good cash to one and not to another?

I am not a member of any trust or any corporation, and so feel that I cannot be accused of sinister motives in thus calling attention to this glaring inconsistency. Trusts may be a bad thing, but let us have fair play. It is not becoming for the pot to call the kettle black.

C. SIDNEY SHEPARD & CO.

C. SIDNEY SHEPARD & CO., Chicago, Ill., are opening a branch house at 224 and 226 Beale street and 225 and 227 Fremont street, San Francisco, Cal. The building is in the wholesale district and convenient to the Oakland ferries. They will carry a large stock of their own manufactures, Tin Plate, Black and Galvanized Sheets, Copper Sheets, Tinnerns' Tools and a general line of House Furnishing Hardware. This makes the eighth city in which the firm have opened branch houses.

THE BUILDERS' HARDWARE QUESTION.

THE discussion of the very unsatisfactory condition of things in Builders' Hardware, especially as related to the retailers' interests, is attracting the attention of the trade. Advices received from many sources reflect existing difficulties and the desire for their correction. The subject is touched upon in some of its different phases in the extracts given below from recent letters:

Concerning competition between the manufacturers and making the point that the interests of the retail merchant should lead him to work in harmony with the manufacturer:

In your edition of May 9, your article under the head of "Hardware" was by far too brief. It would seem only fair to the trade that the able writer of such an article should offer a remedy for the mean state of affairs referred to.

The conditions are such that something besides Christian Science is in order. A little daylight on the methods pursued by the different manufacturers in making and selling their products, it would seem to a looker on, might be a starter for better things; such as: If instead of copying each other almost to a duplicate and selling at a little lower price, they would make their own designs and try and get good money for them, it would be a long step in the right direction. The dealer perhaps helps the mean conditions a little by clamoring for something like his neighbor's at a less price, but it certainly is in the power of the manufacturers themselves to very much improve the mean conditions referred to, and if Push & Forcem get up a nice design, it looks like very poor judgment for Rush & Clipsem to make practically the same thing and push it around for 10 per cent. less money.

In regard to associations, it would seem to any one thoroughly conversant with Builders' Hardware that, unless the jobber is in the retail business, this part of the trade should be left to the retailer, as there is but one way to do a builders' trade successfully, and that is "to know how;" this is what but few jobbers do know. To-day the manufacturer by the conditions existing is obliged to spend a large per cent. to market his product; he can do it without the assistance of either the jobber or retailer if he chooses. Architects all over the country are familiar with the leading makers' products, and are kept posted by the representative of each maker, and it would seem more like a business proposition for the retail Builders' Hardware man, who is the only Builders' Hardware man there is, to work in harmony with the manufacturer, instead of asking him to move out of a position in which he is thoroughly established, which he can and in all probability will retain.

A TRAVELER.

From a Western merchant prominently identified with the retail association movement:

It is true in many instances that the competition between the retailer and manufacturer, and sometimes the jobber, in the sale of Builders' Hardware, is a direct and bitter one. It is to be regretted, and the remedy does not seem to be at hand. There are makers of Builders' Hardware, and to their credit be it said, who in making estimates for large hotel work, city residence work, &c., will make the effort to turn the contract through some resident retailer; there are other makers who do not do this.

The complaint exists to a large or smaller extent in nearly all territory, and has been a source of worry throughout the country. It is not local as regards any State, but belongs to all of them, and has been brought up at nearly every meeting of State associations throughout the country, with no positive remedy offered. It has been urged that every retailer handling a line of Builders' Hardware urge the right of a commission to

the makers thereof. The urging of it will often bring it—the neglect of it will not.

We believe that eventually the work of the various State Hardware associations may help materially in the regulation of this more than important grievance. The commission may be allowed and the goods go direct to the party—this will often solve the question, and no more be heard of it, and it has been the writer's experience that he has never seen or talked with the traveling representative of a reputable firm who was not willing to enter into a deal bearing more or less along this line.

A New England merchant claims that consumers can often buy at lower prices than the dealer:

One of the evils which exists is the fact that the manufacturers, being together on classified goods, and having no agreement regarding contracts, will sell a consumer at less price than the dealer can buy, even in very large quantities. This is so very manifestly unfair that we do not understand why the trade, either wholesale or retail, submit to it. In fact, we do not think it is really understood by the trade.

A Western merchant calls both jobbers and manufacturers to account for soliciting the trade of builders and contractors:

The present state of affairs has been brought about by manufacturers and jobbers soliciting the consumers' business. On a job of any size, where nice goods are used, both jobber and manufacturer go after the bill, and any retailer knows they will bid at about 10 to 15 per cent. off his cost. They will throw this 10 per cent. probably to some local retailer and let him hold the bag for the collection of the account. The retailer has really been forced to acquiesce in this state of things in the past because of the competition between jobbers, &c., for the sale. This has brought about competition between retailers on the same basis of profit, which really represents a loss when cost of doing business is considered, as this item averages from 15 to 17½ per cent. It is an evil that should be stopped. I think if the retail dealer were put on the ground floor in his purchases of this line, and the manufacturers would cease making efforts for these retail jobs, the matter could be handled if our associations would take the matter in hand. The matter will be up at our next meeting.

Condition of things in a prosperous city in Iowa:

We find the Builders' Hardware business a very unsatisfactory one, for which we have several reasons. First of all, there is not enough building going on to justify six or eight stocks of Builders' Hardware to be carried in our town.

If it is an expensive house that is being put up, the owner is usually one who can go into the outside or larger market for his Builders' Hardware, or the contractor is one who is in touch with the larger markets and draws his supplies from them. This practically prohibits us from carrying anything but the ordinary or cheaper class of Hardware.

When a cheaper building is to be built, the owner or the contractor will make a bill of the Hardware and take it to every dealer in the town and the successful bidder will probably be permitted to make 5 per cent. on the bill, unless he chooses to sell it at cost merely for the honor of being the lowest bidder.

In an important city on the Ohio River the competition of jobbers and manufacturers is meeting with organized opposition from the Hardware merchants:

Regarding the sale of Builders' Hardware to consumers by manufacturers and jobbers, the retail Hardware dealers of this city are great sufferers, and in self defense

were compelled to pursue the same course as adopted by other retail dealers throughout the United States—namely, to organize themselves into a body or association with the object of protecting themselves against such disastrous competition.

I believe that as far as local competition is concerned we are in a fair way to succeed in our object, and although we have met with more or less discouragement and disappointment during the two years of our organization we have hopes of again bringing the trade into its proper channel. We should not expect to alter trade conditions which have been growing on us during the last ten years or more in a short space of time.

The jobbers and manufacturers have been pursuing the course of selling to consumers for a number of years, and as the retail dealers have patiently allowed them to do this they saw no reason to cease the practice, and now the evil is of such magnitude that it requires a great deal of patience and determination to overcome it.

There is no doubt in my mind as to the outcome if the retail Hardware dealers will cease buying from competing jobbers and manufacturers. They both depend on the retail dealers and cannot do without them and do a successful business. They realize this fact, and it lies within the power of the retail dealers to help themselves.

Again taking up our local situation, I will say, fearing no contradiction, that the Building Hardware branch of the retail Hardware dealer's business has been ruined through the operation of local jobbing houses. Representatives were sent direct to architects, owners and builders by one jobbing house in particular, and competition became so keen that retail Hardware dealers considered it so much time wasted to bid on specifications in competition with this house, and the result is that most of the retail Hardware dealers now almost consider their Builders' Hardware a side line, whereas formerly it was considered their principal line.

But a change is surely coming, and I hope soon to be able to inform you, our friend, that the atmosphere is entirely clear.

E. HARTZELL CUTLERY COMPANY.

E. HARTZELL CUTLERY COMPANY, Gettysburg, Pa., are successors to the business formerly conducted by Emmert Hartzell at Fairfield, Pa., the establishment at the latter point having been outgrown and Gettysburg affording better shipping facilities. The new organization, which is a corporation with a paid up capital of \$15,000, are now actively pushing the erection of a new plant, consisting of a brick building, 75 x 36 feet, three stories high, which is being equipped with the latest improved machinery for the production of the company's goods. They expect to be in a position to fill orders by June 15. The officers of the new company are Samuel Bushman, president; C. A. Trostel, treasurer; J. Elmar Musselman, secretary, and Emmert Hartzell, general manager. The products of the company are hammer forged cast steel Butchers' Cutlery, including Steak, Skinning, Sticking, Trimming and Boning Knives, and Bread and Kitchen Knives, all of the higher grade.

NATIONAL SWEEPER COMPANY.

NATIONAL SWEEPER COMPANY, Marion, Ind., whose recent entrance into the market as manufacturers of Carpet Sweepers and Clothes Wringers is significant, have issued an advance sheet, in which their assortment of these goods is illustrated. The Carpet Sweepers include the Marion, Monarch and Perpetual, and the Clothes Wringers, the Marion Tub and Monarch Bench. Concerning their line of Carpet Sweepers they state that only the best of materials enter into the goods. While they are not yet making an extensive line of Wringers, they call special attention to the quality of those they are putting on the market. Their factory contains over 50,000 square feet of floor space, with an up to date equipment, and under the charge of men who have had many years' experience in this line of work.

CONVENIENT LIST PRICES.

WE have the following comment from a Hardware merchant in regard to lists, the arrangement of which he regards with approval on account of features which make them serve the convenience of the trade:

WROUGHT IRON PIPE.—One instance of a commendable change, although the writer has never yet seen mention made of it in print, is the list of Wrought Pipe adopted February, 1899. This list is arranged on a most intelligent basis. From $\frac{3}{8}$ to 10 inches the price in cents is as nearly as possible ten times the weight in pounds. This gives at a glance the approximate weight, and what is more important, permits of remarkably quick calculation of freight percentage, as each 1 per cent. on the freight rate is one-tenth of 1 per cent. of the list price, thus:

A freight rate of 10 cents per cwt. is 1 per cent. off the list.
A freight rate of 13 cents per cwt. is 13-10 per cent. off the list.
A freight rate of 50 cents per cwt. is 5 per cent. off the list, &c.

MACHINE BOLTS.—The current lists of Machine Bolts will on examination be found to be an improvement on the old list. It will be noted that the advances by inches and half inches are uniform throughout, thus materially aiding the bill clerk at the factory and jobbing house, and assisting the jobber and retailer in checking invoices.

Other recently revised lists, if carefully studied, will usually be found to have become necessary because of the evolution of trade; or to be improvements in some respect over the old lists.

HAY-BUDDEN MFG. COMPANY.

HAY-BUDDEN MFG. COMPANY, Brooklyn, N. Y., report that in order to keep up with the heavy demand they are operating their entire plant day and night, having started the night shift on first of the year. They have trebled their capacity since their fire about one year ago, and have now in the course of construction additional machinery which will still further increase their output. As evidence of the high quality of their Anvils the fact is cited that the United States Government specifies the Hay-Budden Anvil. The company state that they have received numerous repeat orders from railroads and large industrial corporations, as well as hundreds of letters from blacksmiths containing words of praise for these tools.

A fine exhibit of their Anvils is made at the Pan-American Exposition, Buffalo. It will be found in Block 45, Machinery Building.

J. STEVENS ARMS & TOOL COMPANY.

J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass., under date of the 16th inst. advise the trade that H. M. Pope, Hartford, Conn., has moved his special machinery for the manufacture and boring of his high grade Rifle Barrels to Chicopee Falls, where the machinery is now being installed. Mr. Pope will hereafter be identified with the Stevens plant, having supervision over the production of these Rifle Barrels. The company refer to their general force of employees as having increased from 44 six years ago to 700 at the present time. A year ago, shortly after acquiring the large Overman Bicycle plant, one of the finest in the East, and giving an additional 220,000 square feet of floor space, they tried to rent a part of it. To-day they are occupying nearly all of it themselves, while they are also contemplating an addition to their River plant. The growth and expansion of their business is thus impressively illustrated.

The extensive Auger Bit works of Job T. Pugh, Philadelphia, Pa., were partially destroyed by fire on the 25th inst. The entire fourth floor of the new factory building was burned out and the machinery and stock on the lower floors damaged by water. The cause of the fire is unknown, but it is supposed that the building was struck by lightning. The loss is estimated at \$30,000, fully insured.

WHAT TO DO IN JUNE.

BY H. C. W.

WHAT is there to do but keep on gathering the results of your spring preparation? It's the semi-midmonth of the year, with all the getting ready of the months in front of it, and the so-called dull months to follow it. Then June should be the summing up of all the half year's work—the bringing in at the end of it the welcome knowledge of money made, or the disappointing fact of long weeks of work for naught.

June for Results

is one of the best months of the year. It is the season of haymaking and of harvest, the time of year in which perhaps more matters of moment are brought together and consummated than at any other.

It is the time for house building, for barn finishing, for sales of hay riggings, Mowers and Reapers, Steel Hay Rakes and Tedders, for the all important distribution of the tons and tons of Binder Twine, for Cultivator trade, for all that goes to make the farmer and the citizen prosperous, and through them the Hardware merchant. Then almost as soon as sales are made settlements of some sort should follow—the sooner the better. For all this class of goods it would seem a capital plan to have at hand and ready a short form of due bill or acceptance, closing every account of moment when made or when full accounts are decided on, with definite time of final settlement thus named, avoiding the loss of time and expense in getting at the same results in the weeks and months to come.

June for Planning

is not just the best month, because there is so much else to occupy it, but for many of us there must be borne in mind the old time hoodoo of dull July and August to come. It is the writer's belief that with properly selected stocks, with the right preparation and looking forward to it, there is no excuse for an actual dull month during the entire year. Those of us who are content to go along in the old ruts will, of course, have them. There are instances where location and circumstance may account for them, but the fault is more often our own than that of any combination of place or circumstance. If time can be found at all it is well to make use of it in the effort at finding—if for the first time then in a small way—stocks that will occupy us during July and August and into September. Other merchants do it; it has been demonstrated that every month can be a busy one; it is worth the trying.

June for Advertising.

In the light of the busy and prosperous months of the year we are all prone to neglect our advertising. It is miserable, losing neglect, but occurs all along the line, unless your store be large enough to have it in the hands of one man whose entire time is largely given to it.

At the season of the year when people are all buying they watch more closely than at any other time. They want to know where to buy the goods without hunting for them. They largely get the prices from the fireside and the prices should always be given. There has never yet been found a medium to satisfy the general public equalling the daily paper. The public is only satisfied with plain facts and plain prices well placed in a first-class daily.

June for Collections.

The end of the month should find everything in readiness for extra work at collections. There are times in the year when people expect to pay, that's a good time to ask for money, and next to the first day of the year in importance is the middle or first of July, and of course the work of getting ready must be June work. Perhaps you have all noticed the fact in making collections, particularly those called seasonable, that the merchant who is able to get his bills and statements out on the first day of the month receives by far the best results as to payments. There is a reason for it. Your customers' funds will often reach just so far, and as occasion offers note the difference where your statements reach the customer on the 1st and again where they have gone in

on the 5th or 6th. First bills to reach him are always the ones paid, while later ones often go over. It is an important and sometimes a hard matter to impress this fact on a bookkeeper, but it is a fact nevertheless.

June to Think of a Vacation.

Until of late years very few Hardwaremen ever gave themselves the time or considered the benefits of a vacation. No machine can go on forever without resting, overhauling and oiling. No machine but will last longer and do better work for the resting and reconstruction. If there is a class of men on earth who need vacation it is the Hardware merchant, with his never-ending worry over detail, discounts, payments, purchases, &c. It is gratifying to note that some of us are coming to our senses and giving ourselves each year a few weeks of the oil of recreation. We will last the longer and be the better for it. Our work is too arduous to do without it, and the months of June and July should see our work done as nearly as possible, with some sort of real vacation in view later on.

Early June and Personal Letters.

The valued country trade—the large buyers for the summer months—are as a rule not quickly or always reached through the daily papers, and it is here the value of the stenographer for personal letters comes in. The farming community as no other thoroughly appreciate a personal plea for their custom, and any slack time of the typewriter cannot be used to better advantage than in this way. The letters should go in 2 cent or regular postage cover, not under any circumstances as a circular, and should be as personal as it is possible to make them.

In the absence of a stenographer nearly every good printing office is now outfitted with the new process of typewriter printing, showing the copy effect, and in reality answering every purpose at very small cost.

A Month for Farmers

and their cultivation is the month of June, and there is not another like it in the calendar. Particular attention should be given them on every hand. Show windows should be gotten ready for them and attention called to them through the weekly or country newspaper. They are the most appreciative class in the world, because as a rule so little attention is given them.

Again, when you have made the farmer your friend he can do you untold service among his neighbors, and is more than likely to do it on all occasions, and all out of good feeling for you or your firm. The best investment, the best advertising among country trade, is a half dozen or so sterling friends who are always at hand to say a good word for you.

A Satisfactory Month

in every sense of the word is June, both in the looking backward and over the work gone through with, and in the looking forward and planning for the other half of the year, which begins with the ending of the month. As it is the month of roses socially so should it be with the merchant in his business, if for no other reason than that it is the busiest one in the whole year, and busy men make happy men.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

E. J. Holt & Co., Smithfield, N. C., have disposed of their business to the Holt Hardware & Buggy Company, incorporated, who will continue at the old stand. The new enterprise has a paid in capital of \$10,000. The company's officers are as follows: E. J. Holt, president; Thomas R. Crocker, secretary and treasurer; E. J. Holt, Thomas R. Crocker, H. D. Ellington and S. S. Holt, directors. The company will be pleased to receive catalogues, discount sheets, &c., from manufacturers of the lines in which they are interested.

Paul W. McLure, dealer in Hardware, Stoves, Carriage Materials, Iron and Steel, Electrical Supplies, &c.,

has lately added a Plumbing and Steam Heating department to his business, and would be pleased to have catalogues and quotations from manufacturers in this line.

Kelsey Burr Gould, representing Neal & Brinker, 18 Warren street, New York, has opened up an office at 866 Myrtle avenue, Brooklyn, N. Y., and would be pleased to receive catalogues, price-lists, discounts, &c. A full line of Hardware will be handled, all buying being done through Neal & Brinker of New York City.

E. C. ATKINS & CO.

AT the annual meeting of the stockholders of E. C. Atkins & Co., Indianapolis, Ind., held on May 22, the following officers were elected: President and superintendent, Henry C. Atkins; vice-president and secretary, N. A. Gladding; treasurer, M. A. Potter; assistant treasurer, A. D. Gates; assistant secretary, J. W. Perkins; cashier, F. C. Gardner. Directors: Henry C. Atkins, M. A. Potter, N. A. Gladding, A. D. Gates, T. R. Kackley. Henry C. Atkins is the son of the late Elias C. Atkins and has been vice-president and superintendent at the head of the manufacturing department for the past six years, so that he is fully equipped for his new position as president of the company.

The company announce that T. W. Gathright, who is at present secretary of the May & Thomas Hardware Company, Birmingham, Ala., will enter their service about June 1 in the capacity of cashier and local agent at their Southeastern branch house at Atlanta, Ga., succeeding T. F. Barbour, who has held that position since the opening of the branch, but who is now to be given a position in the same capacity at their Minneapolis branch house. Mr. Gathright has a host of friends among the Hardware trade of the South and will have their best wishes for his success in this new departure. The general sales manager of their Atlanta house is Frank X. Ohlen, who for some years was at the head of the Southern Saw Works and later at the head of the Atlanta Saw & Supply Company. Mr. Ohlen has a large acquaintance in the South, particularly among the saw milling industries. Mr. Gathright in going to Atlanta will assist Mr. Ohlen in increasing the sales of the business, as far as time will permit in connection with his special duties.

TRADE ITEMS.

B. WEILAND, who for 12 years was with his brother, Charles Welland, 149 Chambers street, New York, dealer in job and bargain lots of General Hardware, House Furnishing and kindred goods for the trade, has established himself in business on his own account at 103 Reade street. He makes a specialty of jobbing files, both first and seconds, of all makes, but more particularly seconds. He also deals in job lots of Mechanics' Tools.

THE ERICSSON TELEPHONE COMPANY, 296 Broadway, New York, manufacturers and importers of Telephone Switch Boards and Telephone Supplies, are distributing to the trade a series of photographic reproductions on a card 14 x 11 inches, showing the two factories of L. M. Ericsson & Co. in Stockholm, Sweden, and St. Petersburg, Russia, where the equipment is made. On the same card is also an engraving of an Ericsson Multiple Switch Board with a capacity of 10,000 subscribers in Copenhagen, Denmark, together with a similar view of the first portion of a Switch Board installed at Shanghai, China, which is interesting because of the native operators.

GEO. R. BENJAMIN, who for the past 17 years has represented the firms of M. Hartley Company, Remington Arms Company and the Union Metallic Cartridge Company, has connected himself with the Eastern Department of the Peters Cartridge Company, 80 Chambers street, New York City, and will represent them on the road.

CHARLES E. MILLER, 97-101 Reade street, New York, manufacturer, jobber and exporter, carries in stock everything necessary to build and repair Automobiles,

Bicycles, Motor Bicycles, Tricycles and Quadricycles, Pneumatic Carriages, Speed Wagons, Sulkies, &c. He is also the metropolitan representative of 14 different manufacturers making this general line of goods. An illustrated catalogue, just from the press, describes with net prices goods of this character, supplementing a similar catalogue of Automobile goods, issued earlier in the season.

PRICE-LISTS, CIRCULARS, &c.

THE E. D. CLAPP MFG. COMPANY, Auburn, N. Y.: Illustrated catalogue and price-list of Carriage Forgings. Besides the extensive line of these Forgings shown the company state that they also have excellent facilities for producing many special Forgings for carriage, bicycle, automobile, electric motor, agricultural and other purposes, varying in weight from ½ ounce to 10 pounds. A few of these are represented.

THE RICHARDSON BALL BEARING SKATE COMPANY, 152 to 158 Lake street, Chicago: Illustrated circular descriptive of Greenwood Rubber Heeled Horseshoes, Folding Mouth Speculum for horses, Adjustable Buggy Hoods and Vehicle Aprons, for which they are general selling agents.

G. BICKELHAUPT, 243-245 West Forty-seventh street, New York: A little booklet issued in the interest of their Patent Automatic Self Locking Scuttle Opener. It illustrates the value of this device in providing a quick escape in case of fire, while also securing the scuttle against entrance by burglars. The opener is operated from the floor and when closed is self locking. It can be attached to any scuttle.

SAFETY FIRE EXTINGUISHER COMPANY, 29-33 West Forty-second street, New York: Safety Fire Bucket Tank and Buckets. A pamphlet is issued in which numerous testimonials are given from houses in different parts of the country expressing their satisfaction with this method of fire protection.

NATIONAL SWEEPER COMPANY, Marion, Ind.: The company have just issued a booklet describing the National line of Carpet Sweepers, including the Marion, the Monarch, the Perpetual and the Monarch Extra Sweepers. The display stand which is furnished free to the company's customers is also shown. A booklet descriptive of their line of Clothes Wringers will soon be issued.

H. F. OSBORNE, Newark, N. J.: Folder devoted to Osborne's Meat Juice Presses, which are made in a number of styles and sizes.

McKENNA BROS.' BRASS COMPANY, Pittsburgh, Pa.: Circulars relating to McKenna's Home Bottler, Burglar Proof Liquor Cock, and other saloon supplies.

THE U. S. ALUMINUM CASTINGS COMPANY, Cincinnati, Ohio: Catalogue describing the Ideal Rubber Roller Brake, Ideal Aluminum Grips, Universal Adjustable Automobile Steering Bar Grip, Acme Aluminum Metal, &c.

J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: Folder devoted to the Stevens-Maynard, Jr., Rifle No. 15 and Stevens' latest Single Barrel Shotgun. Another folder calls attention to their Victor Bicycles for 1901.

AMONG THE HARDWARE TRADE.

Esbeck Bros., Kimballton, Iowa, have been succeeded by M. N. Esbeck & Co.

Blocher & Huber are a new Hardware firm at Glasgow, Mo. Their line comprises general Hardware, Tinware and Sporting Goods.

Hawley Hardware Company, San Diego, Cal., have sold their Heavy Hardware stock to McKenzie, Flint & Winsby, who are wholesale dealers in Shelf and Heavy Hardware, Blacksmiths' and Wagon Makers' Supplies, Iron, Steel and Pipe, Plumbers' and Steam Fitters' Supplies, &c. The firm have taken an adjoining three-story brick building in order to accommodate the stock thus acquired.

L. A. Higgins Hardware Company, Harvard, Neb., have been incorporated with a capital stock of \$7500. The company will deal in Shelf and Heavy Hardware, Stoves and Tinware, Sporting Goods, &c.

J. F. McCartney has lately commenced business at Station No. 1, Sioux City, Iowa, handling at present Hardware, Tinware and Stoves. It is Mr. McCartney's intention to enlarge his line as the demand warrants.

E. E. Greenshaw has disposed of the Hardware part of his business at Shoal Lake, Manitoba, to W. J. Eakins and W. J. Griffin, formerly of the James Robertson Company, Winnipeg, who have entered business at Shoal Lake under the style of Eakins & Griffin. Mr. Greenshaw disposed of his stock of Farm Implements to Wm. Martin of Shoal Lake.

J. H. Dunaway has succeeded Dunaway & Harris, Hindsville, Ark., dealers in Heavy Hardware and Agricultural Implements.

W. D. Konantz, Arcadia, Kan., dealer in Hardware, Stoves, Vehicles, Agricultural Implements, Harness, Lumber, Building Material, &c., has formed a partnership with C. W. Goodlander, who is in the lumber and grain business at Fort Scott, under the style of Goodlander & Konantz.

W. D. Marvin, dealer in Hardware, Stoves, Agricultural Implements, Lumber, Building Material, &c., Pine Island, Minn., has built an addition to his establishment, giving it a frontage of 100 feet on Main street.

The Jacobs-Hutchinson Hardware Company have lately commenced business in Fairmont, W. Va., handling at wholesale exclusively a line comprising Shelf and

retail business in Hardware, Harness, Lumber, Building Materials, &c., on a larger scale than heretofore.

MISCELLANEOUS NOTES.

The Bradley Improved Steel Bracket.

It is interesting to note the improvements made by the Atlas Mfg. Company, New Haven, Conn., in the Bradley steel shelf bracket since it was first put on the market some years ago. Originally the screw holes, which are now side by side, were placed one over the other, bringing them in line with the grain of the wood, causing the wood to split in some cases when the screws were driven in. A considerably larger size of wire was also substituted, thus giving greater strength and stiffness. As first made it was found that occasionally the lock which was used for fastening the ends of the wire together did not hold. As the bracket is now made the wires are brought together at the extreme end of the upper part of the bracket, and thus, it is pointed out, two solid wires throughout the entire length of the bracket are secured. Referring to the strength of the brackets the company state that tests made in loading demonstrate that a pair of 5 x 7 brackets will sustain all the way from 400 to 700 pounds, mention being made of one test where it required 925 pounds to break them down, the weight being suspended 3½ inches from the wall.

The Savage Magazine Tack Hammer.

The accompanying cut represents a magazine tack hammer put on the market by the Magazine Hammer Company, Utica, N. Y. The hammer handle is fitted on the under side with a magazine which holds between 60 and 70 6 or 8 ounce tacks. These are fed into the maga-



The Savage Magazine Tack Hammer.

Heavy Hardware, Stoves and Tinware, Paints, Oils, Roofing, &c.

Robinson & Nelson are successors to Bailey and Robinson in the Hardware, Stove and Tinware business in Chelsea, I. T.

O. E. Champe has purchased the Hardware business formerly conducted by E. M. Marquis, at Hastings, Neb.

Shoff & Andrews are successors to Fayant & Co., Hardware and Agricultural Implement dealers, Moorhead, Iowa.

M. L. Paddock & Son, Saunemin, Ill., have added Hardware, Stoves, Tinware, Sporting Goods, &c., to their former Agricultural Implement stock.

L. F. Gifford has succeeded Howard & Gifford, McLean, Ill., having purchased the interest of Mr. Howard, and will continue the business in Hardware, furniture, wall paper, &c., which has been established for 20 years.

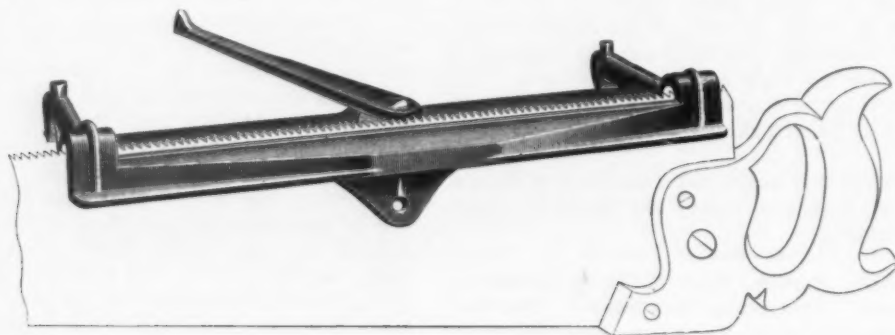
The A. W. Miles Company, Livingston, Mont., have been incorporated with a capital stock of \$100,000, and the following officers: A. W. Miles, president; J. Herman Wolcott, vice-president, and E. M. Sybert, secretary and treasurer. They will continue the wholesale and

zine one at a time by pushing their heads into the magazine tube, a small flat spring at this point retaining them after they are in the magazine. It requires, it is explained, but a few seconds to fill the magazine. A loader can be obtained, when desired, into which the tacks are placed and then dumped into the magazine. This automatic magazine loader is referred to as convenient in work that requires the use of a larger number of tacks than the magazine holds. In using the hammer, a pull on the trigger, which is then immediately released, automatically takes a tack from the magazine and places it on the face of the hammer head, where a horseshoe magnet retains it in the proper position until driven. The tack may be driven with one or more blows as desired, and driven overhead, or in any position, as, it is stated, it will not fall off until it is driven. Among the advantages claimed for the hammer are the following: That only one hand is required to operate the hammer, thus leaving the other hand free to hold in position the material to be tacked; that the custom of holding tacks in the mouth is obviated, and that there is not the danger of striking the fingers as when tacks have to be placed or held in position for driving. The manufacturers state that the hammer is of the simplest construction, strong and practical; positive in its action, and that it is impossible to get out of order with reasonable care. If through accident any part is broken or lost, duplicate parts can be obtained at a moderate cost.

Perfection Saw Clamp.

Tower & Lyon, 95 Chambers street, New York, are manufacturing the Perfection saw clamp illustrated herewith. This device can be attached to a work bench, shelf or any boardlike surface in an instant by catching the chisel pointed arms at the back in the wood with the front slightly raised and forcing the front part of the clamp down level with the bench, when a tap or two on the arms over the points can be given if neces-

sary. It is stated that more than two-thirds of the operation is automatic, and that the great velocity and quick reverse so rapidly throw off the heat that the saving in ice and salt will soon pay for the freezer. For freezing, finely broken ice is mixed in a separate pail with fine salt, and when partly melted is poured into the freezer tub, the wire cloth cylinder and can having previously been placed in position. Among others, the manufacturer claims the following points of excellence for the freezer: That there is no



Perfection Saw Clamp, with Saw in Position.

sary. The clamp is 13 inches long over all and there are 11 inches of clear space for filing. When the clamp is firmly in place the $5\frac{1}{2}$ -inch lever at the back is given a turn, when the eccentric movement provided quickly grips the saw blade and holds it securely. If desirable to keep the clamp in a permanent position there is a countersunk screw hole in the center underneath through which to drive a screw.

The Autospin Ice Cream Freezer.

The cuts herewith shown represent a freezer put on the market by Fred. J. Burr, Middletown, Conn. As shown in Fig. 2, the tin can when in use is surrounded by a galvanized wire cloth cylinder, keeping the ice from touching the can, though in the cut the cylinder is partially cut away to show the can. The wire cylinder is separate from the can, and remains stationary while

crank, scraper or iron gears to cause friction; no iron bridge to absorb the cold; no hole in the can top through which cold air can escape and salt get into the cream; that the can may be removed at any time and instantly replaced; that a pull of the strap sets the can spinning like a top, therefore the greater part of the motion is automatic; that the can floats, doing away with friction of ice and the wearing of the can, and that the freezer operates with the same ease when the cream is freezing as when it is first put in the can. The operation of freezing is thus explained: "The cream whirls around, rising up into the cover, which is held in place by lugs. The air from the cold top of the can whirls in a cone down through the warm center of the cream to the bottom of the can. Every second, the motion is reversed with the same speed as before. The cream tumbles down into the bottom of the can, being thoroughly aerated and mixed—thereby eliminating the hard work-



Fig. 1.—The Autospin Ice Cream Freezer.

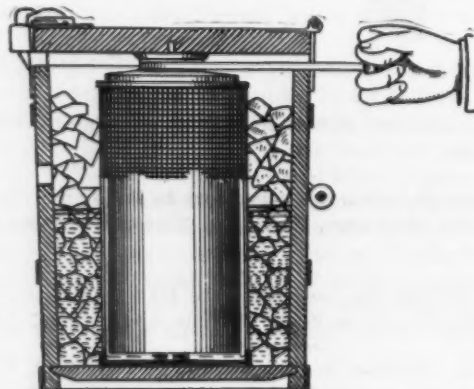


Fig. 2.—Sectional View of the Autospin.

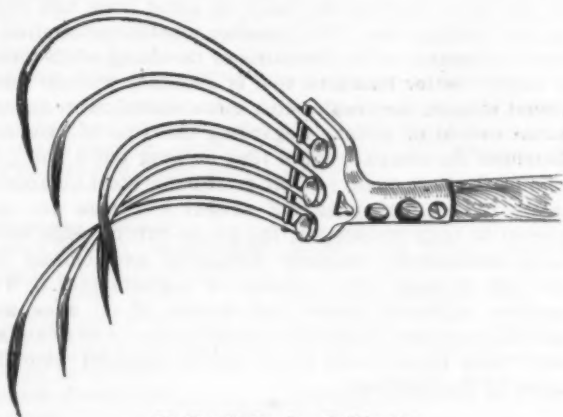
the can revolves. The tub is provided with a wooden bridge, and the can is pivoted top and bottom to permit its revolving. There is no hole in the top of the can. On the top of the can cover is a small drum or reel, to which one end of a webbing strap is attached. At the other end of the strap an iron handle is fastened, as shown in the illustrations. The can is revolved by first winding the strap around the reel a few times. The handle is then pulled to start the can spinning and to draw the strap off the reel—keeping the strap taut all the time—then letting it wind back onto the reel. Repeating this operation continuously causes the can to reverse 60 times a minute, and to make over 800 revolu-

ing scraper—and the air that has taken warmth from the cream rushes to the top of the can and is again chilled." The freezer is made in 2, 3 and 4 quart sizes. All iron parts of the freezer are galvanized.

The Birmingham Scale Works have just commenced operations at Birmingham, Ala. At first special attention will be given to repairing and rebuilding Scales of all kinds. It is expected that a large amount of work will be secured in connection with furnaces, railroads and cotton mills. They carry a full line of parts of all Scales manufactured.

Garden Cultivator.

The Garden Cultivator Company, 310 South Eighth street, St. Louis, Mo., have just put on the market the new garden cultivator here illustrated. It has six teeth made of spring steel and oil tempered, with polished face, and weighs about 3 pounds. In planting and cultivating it is said to take the place of spade, hoe, rake and marker. The claims made for the cultivator by the



Six-Tooth Garden Cultivator.

manufacturers are that it leaves the ground pulverized and level, that the back can be used as a marker, making the rows 7 inches apart at one stroke and that the teeth then draw the dirt from both sides, covering the seed evenly. Also, that the small teeth go close to the plant being cultivated and that the cultivator need not be raised out of the ground but pulled through it, which is referred to as easier and better than pushing with a wheel hoe. Any of the teeth can be adjusted at the pleasure of the operator, and if advisable to straddle a row the middle teeth can be removed, leaving a pair of teeth on each side. It is especially recommended by the makers for small fruits, such as blackberries, raspberries, grape vines, &c.

World Hose Coupling.

E. M. Hotchkiss Company, New Haven, Conn., are manufacturing the World hose couplings here illustrated. Fig. 1 shows the coupling complete, ready for use. Fig. 2 is a sectional view showing the construction of it.



Fig. 1.—World Hose Coupling.

On the nut end, 3, is a permanent vulcanized packing, X, inserted in a dovetail groove. This packing, it is stated, is always in its place and cannot drop out. On the screw end, 1, is a concaved surface, which, when the coupling is put together, contacts with the vulcan-

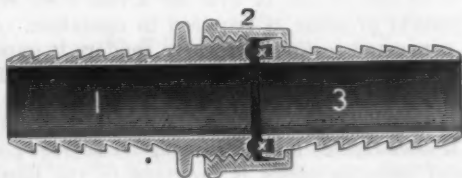


Fig. 2.—Sectional View of Coupling.

ized packing, closing over and around it in such a way as to effectually keep it in position and make a perfectly tight joint by giving the nut, 2, only a slight turn after the screw end touches the packing. By means of this

concavity, it is pointed out, all danger is avoided of the coupling being screwed together so tightly as to injure the packing, as if the nut is turned up as far as possible the outer edges of the concaved surface, 1, are brought solidly against the inner and outer metal walls, which hold the packing in part 3, thereby keeping the packing central and in place, and preventing it from being too closely compressed. Although the dovetailed groove holds the packing securely in position, the latter, if worn or injured, can be easily removed and replaced by other packing. These couplings can be supplied with packing in both screw end and nut end, suitable for lengths of hose which are to be used singly, one end for sill cock and the other end for nozzle, which require packing in each. The couplings are made in $\frac{3}{4}$ and $\frac{1}{2}$ inch sizes, and A, B, C and D qualities and styles, in both brass and cast malleable steel shanks.

Steel Shop or Tote Boxes.

The Cleveland Wire Spring Company, Cleveland, Ohio, are offering steel shop or tote boxes, shown herewith. These are made from a single piece of sheet steel, with a triple reinforcing fold on the upper edges, the sides and triple reinforcing fold lapping around on the

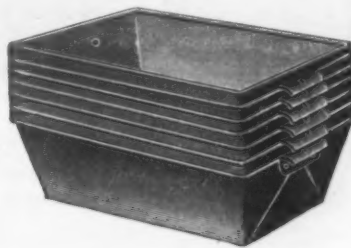


Fig. 1.—Steel Shop or Tote Boxes.

corners, making a continuous band around the top, sides and corners of the box, with four thicknesses of metal in each corner. This results in a box without a rivet, which, it is stated, it is impossible to pull apart. A stiff sheet handle is so formed that a part is pushed under the triple band and then secured to the end of the box by two rivets. Another feature referred to is a hole for the drag hook through the handle, instead of through the end of the box. The same construction is closely followed in the company's one piece folded oil and water tight steel box. They also make shop boxes with double and triple reinforcements of the bottom and end, shown in Fig. 2. The reinforcements are integral

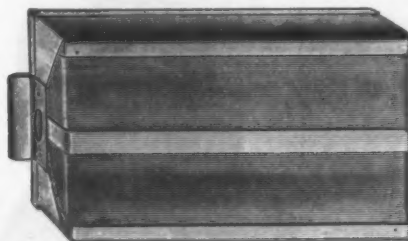


Fig. 2.—Triple Reinforced Oil Tight Steel Shop Boxes.

and a part of the one piece of sheet metal used. The boxes are designed for the use of manufacturers of malleable iron castings, bolts, nuts, nails, rivets, &c.

The Hardware store of E. C. Minas at Hammond, Ind., was robbed on May 21 of a number of Razors, other Cutlery and a quantity of small miscellaneous goods. Mr. Minas states that other Hardware stores in the vicinity have been similarly burglarized, and detectives state that this class of goods is being peddled through the country. It is believed that the trade would do well to keep on the lookout for peddling operations in their vicinity, as thus the culprits may be detected and this class of predatory operations may be checked.

New Century Axes and Tools.

The American Axe & Tool Company, 253 Broadway, New York, are manufacturing what is known as the New Century line of Ridge axes and tools, two leading examples of which are here illustrated. This large line



Fig. 1.—Dayton Pattern Axe.

of axes and hatchets, made under a recent patent in an entirely new plant just completed at Glassport (near Pittsburgh), Pa., is comprehensively described in an



Fig. 2.—Shingling Hatchet.

ornate catalogue lately issued containing 32 leaves, on one side of each of which is a beautifully

embossed cut of each style in color on heavy plate paper. The main feature in the construction of these goods is that in the form of blade adopted the frictional surface has been reduced, which enables the axe or hatchet to enter and leave the wood more freely than the ordinary blade. The bevel will also break the chips, while on account of the reduced wearing surface of the bit less time is required in grinding to obtain and keep the desired cutting edge, for the reason that in an ordinary fashioned blade grinding must be done from the eye to the cutting edge to reduce the bit proportionately as it wears out, whereas with this style of tool it is merely necessary to grind from the bevel to the cutting edge. Still another advantage secured is that on account of the beveling or recessing of the blade a larger, better balanced tool is obtained without additional weight, the result being more cutting edge for the same weight of metal. Regarding this line of axes and hatchets the company state that nothing but a full portion of the best quality of bit or crucible steel obtainable is used, and that none but skilled workmen are employed in their production, the bit or cutting edge being hand hammered, carefully tempered and closely inspected through each process of manufacture. The various styles of single and double bitted axes and hatchets are made under the trade-marks "Americanax" and "Red Ridge," and every tool is stamped with the name of the company.

The Nulite Indoor Arc Illuminator No. 42.

The Chicago Solar Light Company, 132-134 Lake street, Chicago, have brought out the incandescent arc illuminator which is herewith illustrated. This is a



The Nulite Indoor Arc Illuminator No. 42.

gasoline lamp of 600 candle power, which has been brought out to meet the demand for a well made lamp of high candle power at a moderate cost. It is described as constructed of the best metal and made in the best possible manner, all joints, connections, valves, &c., being made with the greatest care and accuracy. The reservoir is made of 18-gauge brass, to stand a pressure of 350 pounds or over by actual test. Only 25 to 30 pounds pressure is required in operation. A new device connected to the filler valve renders it impossible to get too much gas in the reservoir. An extra shut off valve is provided, so that the flow of gas can be immediately stopped independent of the needle valve, the air mixer screws on the nipple insuring its correct position. A special cleaning outlet is provided in the bottom of the reservoir, rendering it an easy matter to empty and clean out the reservoir when necessary. An automatic nipple cleaning needle is provided. The extension arm at the top can be turned down when desired, which will many times be found a great convenience.

Current Hardware Prices.

REVISED MAY 28, 1901.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33½@33½@10% signifies that the price of the goods in question ranges from 33½ per cent. discount to 33½ and 10 per cent. discount.

Cut Prices.—In the present condition of the market there is a good deal of cutting of prices by the jobbing trade, whose quotations are often lower than those of the manufacturers.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (May 3, 1900), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters Blind—

Domestic, 7/8 doz. \$3.00...33½@33½@10%
North's...10%
Zimmerman's...10%

Window Stop—

Ives' Patent...35½%
Tappin's Perfection...50%

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—American—

Eagle Anvil...7¼@7¼@
Hay-Budden, Wrought...9@9¼@
Horseshoe brand, Wrought...9¼@9¼@
Hanson...7@7¼@
Trenton, Wrought...7@7¼@

Imported—

Peter Wright's...9¼@9¼@

Anvil, Vise and Drill—

Millers Falls Co., \$18.00...30%

Apple Parers—See Parers, Apples, &c.

Aprons, Blacksmiths'—

Hull Bros. Co.:
Lots of 1 doz...35%
Smaller Lots...20%
Lots of 3 doz...30%

Augers and Bits—

Com. Double Spur...70@%
Boring Machine Augers...60@10@10@10@10@

Car Bits, 19-in. twist...60@80@10@
Jennings' Pattern...60@10@10@

Auger Bits...60@10@10@10@
Ford's Auger and Car Bits...40@10@40@10@10@

Forster Pat. Auger Bits...25%
C. E. Jennings & Co.:
See 19 ext. list. E. Jennings' list...40%

No. 30, R. Jennings' list...50%
Russell Jennings...25@10@25@
L'Hommedieu Car Bits 15@10@15@10@5%

Mayhew's Countersink Bits...45%
Pugh's Black...30%
Pugh's Jennings' Pattern...35%
Snell's Auger Bits...60%

Snell's Bell Hangers' Bits...60%
Snell's Car Bits, 12-in. twist...60%
Wright's Jennings Bits (R. Jennings' list)...50%

Bit Stock Drills—

Standard list...65@65@5%

Expansive Bits—

Clark's small, 1½; large, 2½...50@10%
Lavigne's Clark's Pattern, No. 1...10%

Doz., 2½; No. 2, 1½...50@10%
C. E. Jennings & Co., Steer's Pat...35½%
Swan's...60%

Glimet Bits—

Common Double Cut, gro. \$2.25@2.75
German Pattern...gro. \$3.50@4.50
Double Cut, makers' lists...60@50@10%

Hollow Augers—

Bonney Pattern, per doz. \$11.00@11.50
Amos...35@10%
New Patent...35@10%
Universal...30%

Ship Augers and Bits—

Ford's...40%
Snell's...40%
C. E. Jennings & Co.:
L'Hommedieu's...15@13%
Watrous...40%

Awl Hafts, See Hafts, Awl.

Awls—

Handled...gro. \$2.75@3.10
Unhandl'd, Shouldered, gro. \$3@3.50
Unhandl'd, Patent...gro. \$6@7.00

Peg Awls:
Unhandl'd, Patent...gro. \$1@3.10
Unhandl'd, Shouldered, gro. \$3@7.00

Servitch Awls:
Handled, Common, gro. \$3.50@4.00
Handled, Socket...gro. \$11.50@12.00

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

First Quality, best brands \$5.50@6.75
First Quality, other brands \$5.50@6.50
Jobbers' Special Brands:

Good Quality...45.00@5.25
Best Quality...\$5.25@5.75
Cheap, Handled Axes...\$5.50@5.75
Beveled, add 5¢ doz.

Axle Grease—See Grease, Axle.

Axles—

Concord, Loose Collar...4¼@5¼
Concord, Solid Collar...5¼@5¼

No. 1 Common...5¼@5¼
No. 1's Com. New Style...5¼@5¼

No. 2 Solid Collar...5¼@5¼
Nos. 15 to 18...70@10@75%

Nos. 19 to 22...60@10@60@10@5%
Nos. 23 to 25...75@5@75@10%

Boxes, Axle—

Common and Concord, not turned...15.50
Common and Concord, turned...15.50

Half Patent...15.50@10%

Balances—Sash—

Caldwell new list...50%
Foilman's...60%

Spring Balances—

Spring Balances...50@10@50@10@5%
Chatillon's:
Light Spz. Balances...40@10%

Straight Balances...40%
Circular Balances...50%

Large Dial...30%
Petouze...50%

Barb Wire—See Wire, Barb.

Bars—Crow—

Steel Crowbars, 10 to 40 lb., per lb...3.90@3.10

Beams, Scale—

Scale Beams, List Jan. 12, '98...30@10%
Chatillon's No. 1...30%

Chatillon's No. 2...40%

Beaters—Egg—

Standard Co.:
No. 5 Steel Handle Dover...\$6.50

No. 10 Steel Handle Dover...\$8.00
No. 10 Steel Handle Dover...\$8.00

No. 15 Extra Heavy Steel Handle...\$15.00
Rival...\$10.00

Taplin Mfg. Co.:
No. 50 Small Family size...\$6.50

No. 100 Regular Family size...\$8.00
No. 100 Regular Family size...\$8.00

No. 150 Large Family size...\$15.00
No. 150 Large Family size, tinned...\$17.00

Lyon's Standard size...\$17.00
Wonder (S. S. & Co.)...\$7.50

Bellows—

Blacksmith, Standard list 70@70@10%
C. E. Jennings & Co., Blacksmith...80@10%

C. E. Jennings & Co., Hand...35½%

Blacksmiths—

Inch...\$0.35 \$2.35 \$3.35 \$4.35 \$5.35 \$6.35
Each...\$3.50 \$4.50 \$5.50 \$6.50 \$7.50 \$8.50

Extra Length:
Each...\$4.00 \$5.50 \$6.50 \$7.50 \$8.50 \$9.50

Molders—

Inch...9 10 11 12 14 16
Doz...\$6.75 \$7.50 \$8.50 \$9.50 \$10.50 \$11.50

Hand—

Inch...6 7 8 9 10 12
Doz...\$3.75 \$4.25 \$4.50 \$5.00 \$5.75 \$6.75

Bells—Cow—

Ordinary goods...75@5@75@10%
High grade...70@70@10%

Jersey...75@10%
Texas Star...60@10%

Door—

Abbe's Gong...45%
Barton Gong...55%

Home, R. & E. Mfg. Co.'s...55@10%
Lever and Pull, Sargent's...30@10@10%

Yankee Gong...55%

Hand—

Hand Bells, Polished...60@5@60@5%
White Metal...55@5@55@5%

Nickel Plated...30@5@30@5%
Swiss...60@60@75%

Silver Chime...35@35@35%

Miscellaneous—

Farm Bells...10@9@40%
Steel Alloy Church and School...50@10@50@10%

Willmot & Hobbs Mfg. Co., Gongs...70%

Belting—Rubber—

Agricultural (Low Grade)...75@10@90%
Common Standard...75@75@10%

Standard...70@70@10%

Extra...60@10@60%

High Grade...50@10@50@10@5%

Seamless Stitched, Imperial...45@5%

Boston...50@5%

Niagara...60@5%

Leather—

Extra Heavy, Short Lap...50@10@60%

Regular Short Lap 60@10@60@10@5%

Standard...60@10@10@70@5%
Light Standard...70@70@10%

Cotton—

Rossendale-Reddaway B. & H. Co.:
Sphinx Brand...60@10%

Durable Brand...70%

Bench Stops—See Stops, Bench

Benders and Upsetters, Tire—

Green River Tire Benders and Upsetters...30%

Stoddard's Lightning Tire Upsetters...40@50%

Bicycle Goods—

John S. Long's Son's 1899 list:
Chain...50%

Parts...50%

Spokes...50%

Tub...60%

Bits—

Auger, Glimet, Bit Stock Drills, &c.—
See Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—Tackle—

Common Wooden...70@70@10%

Cleveland Steel...60@10@70%

Ford's Star Brand Self Lubricating...60@10%

Hollow Steel, Ford's Pat. Star Brand...50@10%

Lane's Patent Automatic Lock and Junior...30%

Stowell's Novelty, Mal. Iron...50%

See also Machines, Hoisting.

Beards Stove—

Zinc, Crystal, &c...40@10@5%

Boils—

Carriage, Machine &c.—
Common, list Jan. 30, '95...65@10@%

Norway Iron, \$3.00, list Oct. 7, '94...80@30@65%

Phila. Eagle, \$3.00 list May 24, '92...80@30@10%

Bolt Ends, list Jan. 30, '95...70@75@%

Machine, list Oct. 1, '99...70@75@%

Machine with C. P. C. & T. Nuts...65@12½%

NOTE—The rapid advances in manufacturers' prices enable the jobbers to cut prices freely.

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch...\$3 4 5 6 8
Per doz...\$0.25 .30 .35 .47 .65

Cast Iron Spring Foot:

Inch...6 8 10
Per doz...\$1.00 1.35 1.75

Cast Iron Chain, Flat, Japanned:

Inch...6 8 10
Per doz...\$0.75 1.05 1.30

Cast Iron Shutter, Brass Knobs:

Inch...6 8 10
Per doz...\$0.57 .80 1.00

Wrought Barrel Brass Knob:

Inch...\$3 4 5 6 8
Per doz...\$0.44 .50 .61 .70 1.23

Wrought Barrel...70@10@75@5%

Wrought...Bronzed...60@5@60@10%

Wrought Flush, B. K...50@10@60@10%

Wrought Shutter...50@10@60@10%

Wrought Square Neck...50@50@10%

Wrought Sunk...50@50@10%

Ives' Patent Door...60%

Stove and Plow—

Flow...60@10@%

Stove...77½@77½@10%

Tire—

Common...75@75@10%

Norway Iron...30@30@5%

American Srew Company...82½%

Norway Phila. list Oct. 16, '94...82½%

Eagle Phila. list Oct. 16, '94...85%

Edipha, list Dec. 25, '9...77½%

Port Chester Bolt & Nut Company...77½%

Empire, list Dec. 28, '99...77½%

Keystone Phila. list Oct. '94...85%

Norway Phila. list Oct. '94...82½%

Borers, Tap—

Borers Tap, Ring, with Handle:

Inch...1¼ 1½ 1¾
Per doz...\$4.30 5.00 5.75 7.25

Inch...¾ ¾
Per Doz...\$3.65 11.50

Enterprise Mfg. Co., No. 1, \$1.35; No. 2, \$1.65; No. 3, \$2.50 each...35%

Boring Machines—See Machines, Boring.

Boxes Mitre—

C. E. Jennings & Co...40%

Seavey's, per doz., \$30...40%

Braces—

NOTE—Most Braces are sold at net prices.

Common Ball, American...\$1.15@1.25

Barber's...50@10@60@10%

Fray's Genuine Spotted...60%

Fray's No. 70 to 120, 81 to 125, 907 to 414...60%

C. E. Jennings & Co...50@10%

Mayhew's Ratchet...60%

Mayhew's Quick Action Hay Patent...60%

F. S. & W. Co., Fock's Patent 50@10@60%

Brackets—

Wrought Steel...70@10@75@5%

Bradley's Wire Shelf:
Full cases...80%

Broken cases...75@10%

Griffin's Pressed Steel...75%

Griffin's Folding Brackets...70@10%

Bright Wire Goods—See Wire and Wire Goods.

Broilers—

Wire Goods Co...75%

Buckets, Well and Fire—See Pails.

Bucks, Saw—

Hoosier...7 gro. \$38.00

Bull Rings—See Rings, Bull.

Cartridges—

Blank Cartridges:	
38 C. F., \$5.00	10¢55
38 C. F., \$7.00	10¢55
38 cal. Rim., \$1.50	10¢55
38 cal. Rim., \$1.50	10¢55
B. H. Caps, Con. Ball Sngl., \$1.85 @ 1.90	
B. H. Caps, Round Ball, \$1.15 @ 1.19	
Central Fire, .25	
Pistol and Rifle, .15¢55	
Primed Snells and Bullets, .15¢55	
Rim Fire Sporting, .50	
Rim Fire, Military, .15¢55	

Castors—

Bed, .70 @ 70¢105	
Plate, .75 @ 75¢105	
Philadelphia, .75 @ 75¢105	
Boss Anti-Friction, .70 @ 70¢105	
Martin's Patent (Phoenix), .45	
Payson's Anti-Friction, .70 @ 70¢105	
Standard Ball Bearing, .45	
Tucker's Patent, low list, .30	

Cattle Leaders—

See Leaders, Cattle.	
Chain, Coll—	
NOTE.—Manufacturers usually quote chain at delivered prices.	
American Coll. Cask lots:	
3-16 1/4 5-16 3/4 7-16 1/2 9-16 1/2	
7-15 5-15 3-15 3-15 3-15 3-15	
1/4 1/4 1/4 1/4 1/4 1/4 1/4 1/4	
3-10 3-15 3-15¢ per lb., 3-30 per 100 lb.	
Less than Cask lots add 25¢.	
German Coll. list July 10, '97, 60¢105	
Halters and Ties—	
Halter Chains, .60¢105	
German Halter Chain, list July 10, '97, .60¢105	
Cow Ties, .60	

Trace, Wagon, &c.—

Traces, Western Standard: 100 pair	
6-1/2-6-3, Straight, with ring, \$30.00	
6-1/2-6-2, Straight, with ring, \$31.00	
6-1/2-6-2, Straight, with ring, \$35.00	
6-1/2-10-3, Straight, with ring, \$38.00	
Add 2¢ per pair for Hooks.	
Twist Traces 2¢ per pair higher than straight link.	
Trace, Wagon and Fancy Chains, .60¢105	

Miscellaneous—

Jack Chain, list July 10, '93:	
Iron, .60 @ 60¢105	
Brass, .60 @ 60¢105	
Safety Chain, .70 @ 70¢105	
Gal. Pump Chain, .15 4 1/4 @ 15¢	
Covert Mfg. Co.: .15¢25	
Breast, .70	
Halter, .70	
Rein, .70	
Stallion, .70	
Covert Sash, .70	
Breast, .70	
Halter, .70	
Fold Back, .70	
Rein, .70	

Oneida Community—

Am. Coll and Halter, .60¢105	
Am. Cow Ties, .60¢105	
Eureka Coll and Halter, .60¢105	
Niagara Coll and Halter, .60¢105	
Niagara Cow Ties, .60¢105	
Wire Goods Co.: .60¢105	
Dog Chain, .60¢105	
Universal Dog Coll, .60¢105	

Chalk—(From Jobbers.)

Carpenters' Blue, .gro. 12 @ 15¢	
Carpenters', Red, .gro. 37 @ 40¢	
Carpenters', White, .gro. 33 @ 35¢	
See also Crayons.	
Chalk Lines—See Lines.	
Checks, Door—	
Bardley's, .40¢105	
Columbia, .30¢105	
Eclipse, .60¢105	

Chests Tool—

American Tool Chest Co.: .55	
Boys' Chests, with Tools, .60	
Youties' Chests, with Tools, .60	
Gentlemen's Chests, with Tools, .60	
Farmers', Carpenters', etc., Chests, with Tools, .60	
Machinists' and Pipe Fitters' Chests, Empty, .50	
C. E. Jennings & Co.'s Machinists' Tool Chests, .30	

Chisels—

Socket Framing and Firmer Standard List, .70 @ 70¢105	
Buck Bros., .30	
Charles Buck, .30	
C. E. Jennings & Co. Socket Firmer No. 10, .60¢105	
C. E. Jennings & Co. Socket Framing No. 15, .60¢105	
Swan's, .70¢55	
L. & J. J. White, .30 @ 30¢55	

Tanged—

Tanged Firmer, .40¢55 @ 40¢105	
Buck Bros., .30	
Charles Buck, .30	
C. E. Jennings & Co. Nos. 191, 181, .35	
L. & J. J. White, Tanged, .25¢55	

Cold Chisels, good quality, lb. 13 @ 15¢

Cold Chisels, fair quality, lb. 11 @ 12¢	
Cold Chisels, ordinary, lb. 8 @ 8¢	
Chucks—	
Beach Pat., each \$8.00, .30	
Mussey's Planer and Milling, .15 @ 30¢	
Skinner Patent Chucks:	
Combination Lathe Chucks, .40	
Drill Chucks, Patent and Standard, .40	
Drill Chucks, New Model, .40	
Independent Lathe Chucks, .40	
Improved Planer Chucks, .30	
Universal Lathe Chucks, .40	
Face Plate Jaws, .35	
Standard Tool Co.: .45	
Improved Drill Chuck, .45	
Union Mfg. Co.: .40	
Combination, .40	
Carr Drill, .30	
Geared Scroll, .30	
Independent, .40	
Union Drill, .30	
Universal, .40	
Face Plate Jaws, .35	

Clamps—

Adjustable, Hammer, .20 @ 20¢55	
Cabinet, Sargent's, .50¢105	
Carriage Makers', F. S. & W. Co., .40¢105	
Carriage Makers', Sargent's, .50¢105	
Best, Parallel, .35¢105	
Lineman's, Ulica Drop Forge & Tool Co., .40	
Saw Clamps, see Vices, Saw Miter.	

Cleaners Walk—

Star Sock, All Steel, .50¢105	
Star Shank, All Steel, .50¢105	
W. & J. Shank, All Steel, 7 1/2 lb. 10, \$3.50	
\$3.35; 8 lb., \$3.40; 8 1/2 lb., \$3.50.	

Cleavers, Butchers—

Foster Bros., .30	
New Haven Edge Tool Co.'s, .40¢105	
Fayette R. Plumb, .35¢105	
F. S. & W., .35¢105	
L. & J. J. White, .35¢105	

Clippers—

Chicago Flexible Shaft Company:	
Handy Toilet, .50¢105	
Mascotte Toilet, .50¢105	
Monitor Toilet, .50¢105	
Stewart's Patent, .50¢105	

Clips Axle—

Eagle and Superior 1/4 and 5-16 inch, .70¢105	
Norway, 1/4 and 5-16 inch, .70¢105	

Cloth and Netting, Wire—

See Wire, etc.	
Cocks, Brass—	
Hardware list (Globe, Kerosene, Racking, etc.), .65¢105	

Coffee Mills—See Mills, Coffee.**Collars Dog—**

Brass, Pope & Stevens' list, .40	
Embossed Coll. Pope & Stevens' list, .40	
Leather Pope & Stevens' list, .40	

Compasses Dividers, &c.—

Ordinary Goods, .70¢105	
Bemis & Call Hdw. & Tool Co.: .65	
Dividers, .65	
Callipers, Call's Patent Inside, .65	
Callipers, Double, .65	
Callipers, Inside or Outside, .65	
Callipers, Wing, .65	
Compasses, .65	
J. Stevens & A. T. Co., .35¢105	

Compressors Corn Shock—

J. B. Hughes' #20, .60	
Conductor Pipe, Galva.—	
L. C. L. to Dealers:	
Territory, Not needed.	
Eastern, .70¢105	
Central, .70¢105	
Southern, .65¢105	
S. Western, .60¢105	

Terms, 1/2 for cash.

Jobbers receive extra 1 1/4¢25 on car loads loose, and extra 1 1/4¢ on car loads crated.	
See also Eave Troughs.	

Coolers, Water—

No. 1, .50	
Labrador #11.50 #14.00 #17.50 #20.00	
8 gal.	
No. 2, .30	
Iceland, .25	
10 14 gal.	
\$27.00 #72.00	

Coopers' Tools—

See Tools, Coopers.	
Cord—	
Sash—	
Braided, Drab, .15	
Braided, White, Common, lb 17 1/2 @ 18¢	
Cable Laid Italian, lb. A, 18¢; B, 16¢	
Common India, lb 9 @ 9 1/2¢	
Cotton Sash Cord, Twisted, .18¢105	
Patent Russia, lb. 17 1/2 @ 13¢	
Cable Laid Russia, lb. 17 1/2 @ 13¢	
India Hemp, Braided, lb. 16 @ 15¢	
India Hemp, Twisted, lb. 16 @ 15¢	
Patent India, Twisted, lb. 16 @ 15¢	
Pearl Braided, cotton, .17 @ 18¢	
Massachusetts, White, .18 @ 18¢	
Massachusetts, Drab, .18 @ 18¢	
Eddy's Braided cotton, .18 @ 18¢	
Harmony Cable Laid Italian, .18 @ 18¢	
Ossawaun Mills:	
Crown, Solid Braided White, .18 @ 18¢	
Braided, Giant, White, .18 @ 18¢	
Feetless:	
Cable Laid Italian, .16	
Cable Laid Russian, .14	
Cable Laid India, .12	
Braided India, .18	
Phoenix, White, .18	
Samson:	
Braided, Drab Cotton, .18 @ 18¢	
Braided, Italian Hemp, .18 @ 18¢	
Braided, Linen, .18 @ 18¢	
Braided, White Cotton, Spot, .18 @ 18¢	
Silver Lake:	
A quality, Drab, 40¢, .15	
A quality, White, 35¢, .15	
B quality, Drab, 35¢, .15	
B quality, White, 30¢, .15	
Italian Hemp, 40¢, .15	
Linen, 67 1/2¢, .15	

Wire, Picture—

Braided or Twisted, .85 @ 85¢105	
Note.—There is a good deal of confusion in lists, some using old list and others the new list.	

Corn Knives and Cutters—

See Knives, Corn.	
Corn Planters—	
See Planters, Corn.	

Crackers, Nut—

Little Giant, .50¢105	
Grain, .50	

Cradles—

Grain, .50	
Crayons—	
White Round Crayons, gross 5 1/2 @ 6¢	
Cases, 100 gro., \$4.50, at factory.	
D. M. Stewart Mfg. Co. Metal Workers' Crayons, gr. \$2.50	
Soapstone Pencils, round, set of square, .50	
Rolling Mill Crayons, gr. \$2.50	
Railroad Crayons (composition), gr. \$2.00	

See also Chalk.

Creamery Pails—See Pails, Creamery.	
Crooks, Shepherd's—	
Fort Madison, Heavy, .50¢105	
Fort Madison, Light, .50¢105	
Crow Bars—See Bars, Crow.	
Cultivators—	
Victor Garden, .50¢105	

Cutlery Table—

"Gross Goods," list Jan. '01, net @ 55¢	
Extra 10% to purchasers of \$250 worth in 12 months.	
International Silver Company:	
No. 12 Medium Knives, 1847, .50¢105	
Star, Eagle, Rogers & Hamilton and Anchor, .50¢105	
Wm. Rogers & Son, .50¢105	
Simson L. & Geo. H. Rogers Company:	
12 dwt. Medium Knives, .50¢105	
No. 77 Medium Knives, .50¢105	

Cutters—

H. H. Mayhew Co., .40	
Smith & Heminway Co., .30	

Meat—

Hale's, Nos. 11 & 111 12 & 115 15 & 115 Per doz, \$10.30 15 30 18 00	
American, .30	
Each, .50	
Connecticut, .50	
No. 1, .30	
Each, .31 1/2 2.00 2.25 3.00 3.01 4.00	
Enterprise, .25 @ 25¢105	
Nos., .50 10 12 22 30	
Dixon's, \$2 \$3 \$5.50 \$4.00	
Nos., 1 2 3 4	
\$14.00 \$17.00 \$19.00 \$30.00	
Home No. 1, .50¢105	
Little Giant, .50¢105	
Nos., .30 32 34 36 38 40 42 44 46 48 50	
\$35.00 \$45.00 \$44.00 \$74.00 \$68.00	
Sterling, .33¢105	
Nos., .1 2	
Each, .35.00 \$2.50	
Miles' Challenge, .50¢105	
Nos., .32.00 \$30.00 \$40.00	
New Triumph No. 605, .50¢105	
Woodruff's, .50¢105	
Nos., .100 150	
National, .50¢105	
Chadborn's Smoked Beef Cutter, .50¢105	
Enterprise Beef Shavers, .25 @ 30¢	

Slaw and Kraut—

Henry Diston & Sons:	
Slaw, Corn Grater, .40	
Kraut Cutters 24 x 7, 30 x 8, 30 x 9, 35 x 10, .50	
Kraut Cutters 30 x 12, 40 x 12, .40	
Tucker & Dorsey Mfg. Co.: .40	
Kraut Cutters, .40	
Slaw Cutters, 1 Knife, .50¢105	
Slaw Cutters, 2 Knife, .50¢105	

Tobacco—

All Iron, Cheap, .50¢105	
Enterprise, .50¢105	
National, .50¢105	
Sargent's, .50¢105	

Washer—

Appleton's, .50¢105	
Booney's, .50¢105	

Diggers, Post Hole, &c.—

Dalby Post Hole Auger, per doz, \$10.00	
Iwan's Improved Post Hole Auger, .40	
Iwan's Perfection Post Hole Digger, .40	
Kohler's Universal, .50¢105	
Kohler's Little Giant, .50¢105	
Kohler's Hercules, .50¢105	
Kohler's Invincible, .50¢105	
Kohler's Spiral, .50¢105	
Kohler's Pioneer, .50¢105	
Never-Break Post Hole Diggers, .50¢105	
Samson, .50¢105	

Dividers—See Compasses.**Dog Collars—See Collars, Dog.****Door Checks—**

See Checks, Door.	
Door Springs—	
See Springs, Door.	

Drawers, Money—

Tucker's Pat. Alarm Till No. 1, .50¢105	
118; No. 2, \$15 No. 3, \$14; No. 4, \$13.	

Drawing Knives—

See Knives, Drawing.	
Drills and Drill Stocks—	
Common Blacksmiths' Drill, each \$1.50 @ \$1.75	
Blacksmiths' Self-feeding, each \$2.75 @ 4.00	
Breast, Millers Falls, each \$3.00 1.50 1.05	
Breast, P. S. & W., .30 @ 30¢105	
Goodell Automatic Drills, 40¢55 @ 40¢105	
1 1/2 in. s. utom 1-1/2 in. No. 2 and 3, .10	
Johnson's Drill Points, .25	
Ratchet, Curtis & Curtis, .25	
Ratchet, Parker's, .25	
Ratchet, Weston's, .25	
Ratchet, Whitney's, P. S. & W., .40¢105	
Whitney's Hand Drill, No. 1, \$10.00	
Adjustable, No. 10, \$12.00, .33¢105	

Twist Drills—

Standard List, .60¢55 @ 65¢55	
Drill Bits or Bit Stock—	
Drills—See Augers and Bits.	
Drill Chucks—See Chucks.	
Dripping Pans—	
See Pans, Dripping.	

Drivers, Screw—

Balsey's Screw Holder and Driver, .50¢105	
2 1/2-in., \$6; 4-in., \$7.50 6-in., \$9.40	
Buck Bros. Screw Driver Bits, .30	
Champion, .40¢105	
Douglas Mfg. Co., .30 @ 30¢105	
Frays' Hol. H'dle Sets, No. 5, \$12.00 50¢	
Gay's Double Action Ratchet, .35	
Goodell's Automatic, .50	
Mayhew's Black Handle, .50	
Mayhew's Monarch, .40¢105	
New England Specialty Co., .50¢105	
Sargent & Co.'s:	
Nos. 1, 50, 55 and 60, .50¢105	
Nos. 20 and 41, .50¢105	
Screw Driver Bits, .50¢105	

Barrett's Comb. Roller Gauge.....
 Stanley R. & L. Co.'s Butt & Babbit
 Gauge.....
 Wire, Brown & Sharpe's.....
 Wire, Morse's.....
 Wire P. S. & W. Co.....

Gimlets—
 Nail, Metal, Assorted, gro. \$1.50 @ 1.75
 Spike, Metal, Assorted, gro. \$3.00 @ 3.50
 Nail, Wood Handled, Assorted,
 gro. \$4.00 @ 4.25
 Spike, Wood Handled, Assorted,
 gro. \$5.00 @ 5.25

Glass, American Window
 Jobbers' List, Jan. 31, 1901.
 Less than Carlloads.....
 Carlloads.....
 3000 Boxes.....

Glue—Liquid, Fish—
 List A, Bottles or Cans, with Brush,
 7 1/2 @ 50¢
 List B, Cans (1/4 pts., pts., gals.)
 55¢ @ 55¢
 List C, Cans (1/4 gal., gal.).....
 International Glue Co. (Martin's)
 4¢ @ 10¢ @ 50¢

Glue Pots—See Pots, Glue.
Grease, Axle—
 Common Grade.....
 Dixon's Everlasting.....
 Dixon's Everlasting, in bxs., 1 doz. 1 lb.
 \$1.90; 2 doz. \$2.00

Snow Flake:
 1 qt. cans, per doz. \$2.00; 2 qt., \$3.20;
 1 gal. cans, per doz. \$6.00; 2 gal., \$8.00;
 5 gal. \$24.00

Grindstones—
 Pike Mfg. Co.:
 Improved Family Grindstones,
 per doz. \$3.00
 Pike Mower Knife and Tool
 Grinder, each.....
 Vexloc Ball Bearing, mounted, Angle
 Iron Frames.....

Guards, Snow—
 Cleveland Wire Spring Co.:
 Galv. Steel 1000.....
 Copper 1000.....

Gun Powder—See Powder.

Hack Saws—See Saws.
Hafts, Awl—

Peg Patent, Leather Top.....
 Peg Patent, Plain Top.....
 Sewing, Brass Ferrule.....
 Saddlers', Brass Ferrule.....
 Peg, Common.....
 Brad, Common.....

Halters and Ties—
 Web.....
 Jute Rope.....
 Sisal Rope.....
 Covert's Saddle Works:
 Web and Leather Halters.....
 Jute and Manila Rope Halters.....
 Jute, Manila and Cotton Rope Ties.....
 Sisal Rope Ties.....

Hammers—
Handled Hammers—
 Heller's Machinists'.....
 Heller's Farriers'.....
 Magnetic Tack, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,
 \$1.75.....
 Peck, Stow & Wilcox.....
 Fayette R. Plumb:
 Plumb, A. E. Hand.....
 Engineers' and B. S. Hand.....
 Machinists' Hammers.....
 Riveting and Tappers.....
 Sargent's C. S. New List.....

Heavy Hammers and
Sledges—
 3 lb. and under.....
 3 to 5 lb.....
 Over 5 lb.....
 Wilkinson's Smiths.....

Handcuffs and Log Irons
 See Police Goods

Handles—
Agricultural Tool Handles—
 Axe, Pick, etc.....
 Hoe Rake, Fork, etc.....
 Shovel, etc., Wood Handle.....
Cross-Cut Saw Handles—
 Atkins.....
 Champion.....
 Disston.....
Mechanics' Tool Handles—
 Auger, assorted.....
 Brad Awl.....
 Chisel Handles:

Apple Tanged Firmer, gro. ass'd.
 \$2.50 @ \$3.35; large, \$3.50 @ \$3.20.
 Hickory Tanged Firmer, gro. ass'd.
 \$1.75 @ \$2.20; large, \$3.50 @ \$3.70.
 Apple Socket Firmer, gro. ass'd.
 \$1.70 @ \$1.85; large, \$3.00 @ \$2.25.
 Hickory Socket Firmer, gro. ass'd.
 \$1.60 @ \$1.75; large, \$1.75 @ \$3.00.
 Hickory Socket Framing, gro. ass'd.
 \$3.50 @ \$3.75; large, \$3.65 @ \$3.35.
 File, assorted.....
 Hammer, Hatchet, etc., gro. \$1.00 @ \$1.15.
 Hand Saw, Varnished, doz. 70 @ 75¢
 Not Varnished.....
 Plane Handles:
 Jack, doz. 35¢; Jack Bolted, 55¢ @ 80¢
 Fore, doz. 35¢ @ 35¢; Fore, Bolted,
 70 @ 75¢

Hangers—

Barn Door, New Pattern, Round
 Groove, Regular:
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 3/4 in.....
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Barn Door, New England Pattern,
 Check Back, Round Groove, Regu-
 lar:
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Ladies- Melting-

L. & G. Mfg. Co. 60%
P. S. & W. 40@40.10%
Reading 50@10%
Sargent's 40@40.10%

Lanterns- Tubular-

Regular Tubular, doz. \$4.50@5.00
Side Lift Tubular, doz. \$4.75@5.25
Square Lift Tubular, doz. \$4.75@5.25
Other Styles, doz. \$4.10@4.10.5%

Bull's Eye Police-

No. 1, 2 1/2 inch, \$3.00
No. 2, 3 inch, \$4.00

Latches, Thumb-

Roggin's Latches, doz. 32@35c

Lawn Mowers-

See Mowers, Lawn.

Leaders, Cattle-

Small, doz. 50c; large, 55c
Covert Mfg. Co., 45@2%

Lemon Squeezers-

See Squeezers, Lemon.

Lifters, Transom-

Solid Grip, Payson Mfg. Co., 80%
R. & E., 45%

Lines-

Wire Clothes, Nos. 18 19 20
100 feet, \$3.20 3.00 1.65
75 feet, \$1.80 1.70 1.30

Cosman Mills-

Crown Solid Braided Chalk, 89%
Mason's, No. 0 to No. 5, 93%
Samson Cordage Works, 93%
Solid Braided Chalk, No. 0 to 5, 40%
Silver Lake Braided Chalk, No. 0, \$6.00;
No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50;
No. 4, \$8.00; No. 5, \$8.50; 80%

Locks- Cabinet-

Cabinet Locks, 35%@35.5%
Door Locks, Latches, &c., 40%
[Net prices are very often made on these goods.]

Reading Hardware Co.,

R. & E. Mfg. Co., 20%
Sargent & Co., 40@40.10%
Snow's Victor, 50@10%

Elevator-

Stowell's, 39%
Padlocks-

Wrought Iron,

R. & E. Mfg. Co. Wrt. Steel and Brass, 50%
Sash, &c.,

Fitch's:

Bronze and Brass, 66%
Ives' Patent, 70%
Bronze and Brass, 62%
Iron, 65%
Wrought Bronze and Brass, 55%
Wrought Steel, 60%
Payson's Signal, 90%
Reading, 60@10@10.70%

Machines- Boring-

Without Angular.
Improved No. 3, \$4.25 No. 1 \$5.00
Improved No. 4, 2.75 No. 2 3.35
Improved No. 5, 2.75
Jennings, 2.50 3.00
Miller's Falls, 5.75
Snell's, Rice's Pat. 5.50
Swan's, No. 500, 5.10 No. 200 6.75

Holisting-

Moore's Anti-Friction Differential Pulley Block, 30%
Moore's Hand Hoist, with Lock Brake, 20%
Moore's Portable Pneumatic Hoist, 25%

Ice Cutting-

Chandler's, 15%

Washing-

Wayne American, doz. \$24.00
Western Star, No. 2, doz. 28.00
Western Star No. 3, doz. 30.00
St. Louis, No. 41, doz. 60.00

Mallets-

Hickory, 45@50%
Lignumvite, 40%
Tinners', Hickory and Applewood, 10@55c

Mats- Door-

Elastic Steel (W. G. Co.), 10%

Mattocks-

See Picks and Mattocks.

Meat Cutters-

See Cutters, Meat.

Milk Cans-See Cans, Milk-

Enterprise Mfg. Co., 25@30%
National, list Jan. 1, '04, 30%
Parker's Columbia and Victoria, 50@10@60%

Mills- Coffee-

Parker's Box and Slide, 50@10@60%
Swift, Lane Bros., 30%

Mining Knives-

See Knives, Mining.

Molasses Cates-

See Cates, Molasses.

Money Drawers-

See Drawers, Money.

Mowers, Lawn-

Net prices are generally quoted.

Cheap,

Good, all sizes, \$1.50@2.10
19 15 16 inch
High Grade 4.55 4.50 4.75 6.00
Pennsylvania and Continental 60@10.5%
Quaker City, 70@5%
Great American, 70@5%
Philadelphia, 70@5%
Styles M. S. C. K. T., 70@5%
Style A, all steel, 60@10%
Style E, Low Wheel, 60@10%
Style E, High Wheel, 70@10.5%
Drexel and Gold Coin, low list, 50@5%

Nails-

Cut and Wire. See Trade Report.

Wire Nail and Brads, Papered,

List July 20, 1899, 85@85.5%
Hungarian, Finishing, Upholsterers', &c. See Tacks

Horse-

No. 6 7 8 9 10
A. C., 25% 23% 22% 21% 20%
Ausable, 24% 24% 25% 24% 23%
Capewell, 19% 18% 17% 16% 15%
C. B. K., 35% 35% 35% 35% 35%
Champion, 35% 35% 35% 35% 35%

Clinton, 19% 17% 16% 15% 14%
Maud S., 25% 23% 22% 21% 20%
Neponset, 23% 21% 20% 19% 18%
Putnam, 23% 21% 20% 19% 18%
Vulcan, 23% 21% 20% 19% 18%
American, Nos. 1 to 10, 25% 25%
Jobbers' special brands, per lb. 8@9c

Picture

Brass Head, 1 1/2 2 3/4 3 1/2 in.
Por. Head, 1.10 1.10 1.10 .. gro.

Nippers, See Pliers and Nippers.**Nut Crackers-**

See Crackers, Nut.

Nuts-

Cold Punched Of
Mfrs. or U. S. Standard, list.

Hexagon, plain, 6.00c
Square, plain, 5.00c
Square, C. T. & R., 6.00c
Hexagon, C. T. & R., 6.00c

Hot Pressed:

Mfrs., U. S. or Nar. Gauge Stand.
Square Blank or Tapped, 6.00c
Hexagon Blank or Tapped, 6.00c

Oakum-

Best or Government, lb. 64c
Nav., lb. 6 c
U. S. Navy, lb. 64c
Plumbers' Spun Oakum, 34c
In carload lots 1/4 lb. off f.o.b. New York.

Oil, Axle-

Snow Flake:
1 pt. cans, per doz. \$3.00
1 qt. cans, per doz. \$4.80
1 gal. cans, per doz. \$15.00
5 gal. cans, per doz. \$60.00

Oil Tanks-See Tanks, Oil.**Oilers-**

Brass and Copper, 10@10.50%
Tin or Steel, 60@10.50%
Zinc, 60@10.50%

Paragon:

Brass and Copper, 10@10.50%
Tin or Steel, 60@10.50%
Zinc, 60@10.50%

Malleable, Hammers' Improved, No. 1

\$3.00; No. 2, \$4.40; No. 3, \$4.40; No. 4, \$4.40; No. 5, \$4.40; No. 6, \$4.40; No. 7, \$4.40; No. 8, \$4.40; No. 9, \$4.40; No. 10, \$4.40; No. 11, \$4.40; No. 12, \$4.40; No. 13, \$4.40; No. 14, \$4.40; No. 15, \$4.40; No. 16, \$4.40; No. 17, \$4.40; No. 18, \$4.40; No. 19, \$4.40; No. 20, \$4.40; No. 21, \$4.40; No. 22, \$4.40; No. 23, \$4.40; No. 24, \$4.40; No. 25, \$4.40; No. 26, \$4.40; No. 27, \$4.40; No. 28, \$4.40; No. 29, \$4.40; No. 30, \$4.40; No. 31, \$4.40; No. 32, \$4.40; No. 33, \$4.40; No. 34, \$4.40; No. 35, \$4.40; No. 36, \$4.40; No. 37, \$4.40; No. 38, \$4.40; No. 39, \$4.40; No. 40, \$4.40; No. 41, \$4.40; No. 42, \$4.40; No. 43, \$4.40; No. 44, \$4.40; No. 45, \$4.40; No. 46, \$4.40; No. 47, \$4.40; No. 48, \$4.40; No. 49, \$4.40; No. 50, \$4.40; No. 51, \$4.40; No. 52, \$4.40; No. 53, \$4.40; No. 54, \$4.40; No. 55, \$4.40; No. 56, \$4.40; No. 57, \$4.40; No. 58, \$4.40; No. 59, \$4.40; No. 60, \$4.40; No. 61, \$4.40; No. 62, \$4.40; No. 63, \$4.40; No. 64, \$4.40; 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Riddles, Grain or Sand	
16 in. per doz.	\$3.00 @ \$3.25
17 in. per doz.	\$2.25 @ \$2.50
18 in. per doz.	\$1.50 @ \$1.75

Sad Irons—See Irons, Sad.
Sand and Emery Paper

Crescent Ground Cross Cut Saws.....	35¢
One-Man Cross Cuts.....	40¢
Gang Mill, Mulay and Drag Saws.....	50¢
Bind Saws.....	50¢
Back Saws.....	25¢
Butcher Saws.....	35¢
Hand Saws.....	35¢

Set (Iron or Steel) 70¢ & 10¢
 Sq. Hd. Cap. 65¢ & 10¢
 Hex. Hd. Cap. 65¢ & 10¢

Wood—
 List Jan. 1, 1900.
 Manufacturers' printed discounts.

Knurled, Good.....	gro.	\$6.00 @ 6.50
Buck Brothers.....		27.45
Cannon's Diamond Point, 7 gr. 612.....		25
Mayhew's.....	per gro.	\$9.00
Snell's Corrugated, Cup Pt.....		50c
Snell's Knurled, Cup Pt.....		80c

Paper Shells, Empty :
 First quality, all gauges.....60¢50
 Climax, Club, Rival, 10 and 12 gauge.....65¢50
Paper Shells, Empty :
 Armo, Ideal, Leader, New Rapid,
 Snokel-ss 10, 12, 16 and 20 gauge.

	Cs.	Dk.
	3d Grade.	4th Grade
Plain Back....	\$3.70	\$3.10
Strap Back....	8.10	7.50
Cleveland Pat'n	8.40	7.80

Note.—The above are the regular Association prices to small retailers, but are offered, shaded by jobbers \$0.50 @ 1.00, and Common, Plain Back Shovels are generally sold by jobbers at 25¢.

Sieves and Sifters—
 Hunter's Imitation, gro. \$9.50@10.00
 Buffalo Metallic Bued. S. & Co. 9 gr.
 144 lb. 104.15 154.30
 \$12.90 \$13.80 \$15.00
 Electric Light 9 gr. \$10.00
 Hunter's Genuine 9 gr. \$12.00
 Shaker (Barber's Pat.) Flour Sifters...
 9 doz. \$10.00

Sieves, Tin Rim—
 Per dozen
 Mesh 14 16 18 30
 Black, full size. \$0.95 .98 1.00 1.10
 Plated, full size. \$1.05 1.08 1.10 1.20
 Black, scant. \$0.78 .80 .85

Sieves, Wooden Rim—
 Nested, 10, 11 and 12 inch
 Mesh 18, Nested, doz. \$0.65@0.75
 Mesh 20, Nested, doz. .75@.85
 Mesh 24, Nested, doz. .90@1.00

Sinks—Cast Iron—
 Standard list. 65@65.10
 NOTE.—There is not entire uniformity
 in size used by jobbers.

Wrought Steel—
 Columbus Galv'd and Enamelled. 60@55
 Columbia, Painted. 45
 L. & G. Mfg. Co., Galvanized. 50
 L. & G. Mfg. Co., Enamelled. 50

Skeins, Wagon—
 Cast Iron. 70@10@75
 Malleable Iron. 10@10@50
 Steel. 10@10@105

Slates—
 "D" Slates. 40@10@50
 Unexcelled Noiseless Slates. 60@10@10
 10@10@10@10@10@10@10@10@10@10
 Wire Bound. 35@40@55
 Double Slates, add \$1 case, net.

Blaw Cutters—See Cutters.
Slicers, Vegetable—
 Sterling 3.00. 33.45

Snaps, Harness—
 German. 10@10@105

Covert Mfg. Co.—
 Derby. 35@35
 High Grade. 45@45
 Jockey. 40@40
 Trojan. 45@45
 Yankee. 35@35
 Yankee, Roller. 35@35

Covert's Saddlery Works—
 Crown. 60
 German. 60
 Model. 60
 Triumph. 60

W. & E. T. Fitch Co.—
 Bristol. 40@105
 Empire. 60@55
 German. 40
 National. 60@55
 Perfect. 40
 Clipper. 40
 Champion. 40
 Security. 40
 Victor. 60@55

Oneda Community—
 Solid Steel. 65@65.50
 Solid Wire. 65@10@65.10@105
 Sargent's Patent Guarded. 60@105

Snaths—
 Acetylene. 45@55

Snips, Tinner's—See Shears.
Soldering Irons—
 See Irons, Soldering.

Spoke Trimmers—
 See Trimmers, Spoke.

Spoons and Forks—
Silver Plated—
 Good Quality. 10@10@60@10@55
 Cheap. 60@60@105

Miscellaneous—
 German Silver. 60@10@60@10@105
 Simeon L. & Geo. W. Rogers Co. 1.10@105

Tinned Iron—
 Teas. per gro. 45@50
 Tables. per gro. 90@1.00

Springs—
Door—
 Gem (Coll). 305
 Star (Coll). 304
 Torrey's Rod. 39 in. 9 gr. \$1.10@1.25
 Victor (Coll). 54@1.04@105

Carriage, Wagon, & Co.
 Factory Shipments.
 14 in and wider. Blk. Hf. Brt. Bt.
 54 54 54 60 lb
 Coll's Bolster Springs. 3.5
 Coll's Seat Springs. 3 pair 55

Sprinklers, Lawn—
 Enterprise. 25@29
 Philadelphia No. 1, 9 doz. \$1.10; No. 2.
 \$1.15; No. 3, \$1.24. 305

Squares—
 Nickel plated. List Jan. 5, 1900
 Steel and Iron. 7@10@75@55
 Rosewood Hdl Try Square and T-
 Bevels. 60@10@10@70
 Iron Hdl. Try Squares and T-Bevels.
 10@10@10@10@105

Squeezers—
 Lemon—
 Wood, Common, gro. No. 2. \$5.25
 \$5.50; No. 1, \$5.50@5.50.
 Wood, Porcelain Lined
 (Chen) \$1.10@2.75
 Good Grade. doz. \$3.00@3.50
 Tinned Iron. doz. \$0.75@1.15

Iron, Porcelain Lined doz. \$5.50@5.55
 Jennings' Star. doz. \$1.55@1.90

Staples—
 Barbed Blind. lb. 7@740
 Electricians', Association list. 80@10@10@105
 Fence Staples, same price as Barbed
 Wire. See Trade Report.
 Poultry Netting, Staples. per lb.
 34@34

Grand Crossing Tack Co.'s list. 80@105
Steels, Butchers'—
 Dick's. 305
 Foster Bros'. 405
 C. & A. Hoffmann's. 405

Steelyards. 25@35@105
Stocks and Dies—
 Blacksmiths'. 10@10@105
 Gardner Die Stock, No. 1. 405
 Gardner Die Stock, larger. 405
 Green River. 255
 Lightning Screw Plate. 355
 Little Giant. 355
 Re-see's New Screw Plates. 25@305
 Curtis Reversible Ratchet Die Stock. 255

Stone—
Saythe Stones—
 Chicago Wheel & Mfg. Co.:
 Gem Corundum, 10 inch, \$5.00 per
 gro. 12 inch, \$10.50
 Pike Mfg. Co. 1901 list:
 Black Diamond S. S. 9 gr. \$12.00
 Lamelle S. 9 gr. \$11.00
 White Mountain S. 9 gr. \$10.00
 Green Mountain S. 9 gr. \$9.00
 Extra Indian Pond S. 8. 9 gr. \$7.50
 No. 1 Indian Pond S. 8. 9 gr. \$7.00
 No. 2 Indian Pond S. 8. 9 gr. \$6.50
 Leader Red End S. 8. 9 gr. \$4.50
 Balance of list, list 55

Oil Stones, &c.—
 Chicago Wheel & Mfg. Co. 1901 list:
 Gem Corundum Oil, Double Grit. 505
 Gem Corundum Oil, Single or Double
 Grit. 555
 Gem Corundum Slips. 555
 Gem Corundum Razor Hones. 555
 Pike Mfg. Co. 1901 list:
 Arkansas Stone, No. 1, 3 to 5 in. \$3.95
 Arkansas Stone, No. 1, 5 to 6 in. \$5.50
 Ark. Stone Slips No. 1. \$4.00
 Lily White Washita 4 to 6 in. 605
 Rosy Red Washita 4 to 6 in. 605
 Washita Stone, Extra, 4 to 8 in. 505
 Washita Stone, No. 1, 4 to 8 in. 405
 Washita Stone, No. 2, 4 to 8 in. 405
 Lily White Slips. 905
 Rosy Red Slips. 905
 Washita Slips, Extra. 805
 India Oil Stones (entire list) 255
 Hindostan No. 1, Regular. 105
 Hindostan No. 1, Small. 105
 Axe Stones (all kinds). 405
 Turkey Oil Stones, ex. 5 to 6 in. \$5.00
 Quaker Creek Stones, 4 to 8 in. 305
 Quaker Creek Slips. 305
 Sand Stone. 405
 Belgian, German and Swazy Razor
 Hones. 405
 Natural Grit Carving Knife Hones.
 9 doz. \$3.00
 Quick Edge Pocket Knife Hones.
 9 doz. \$5.00
 Mounted Kitchen Stone. 9 doz.
 doz. \$1.20

Tanite Mills:
 Emery Oil, 9 doz. \$5.00. 50@605

Stoners—
 Enterprise. 85@305

Stops, Bench—
 Millers Falls. 15@105
 Morrill's. 9 doz. No. 1, \$10.00; No. 2,
 \$11.00. 40@305

Stops, Window—
 Ives' Patent. 95@55
 Wilcox, Steel, per doz. \$0.00. 505

Stove Boards—
 See Boards, Stove.

Stove Polish—See Polish, Stove.
Strainers Pump—
 Diamond Joe Pump strainers, per doz. 75

Straps, Box—
 Cary's Universal case lots. 20@105

Stretchers, Carpet—
 Cast Iron, Steel Points. doz. 55@55
 Socket. doz. \$1.75

Strops, Razor—
 Smith & Hemenway Co. 705

Stuffers, Sausage—
 Miles' Challenge, 9 doz. \$9.00. 50@505
 Enterprise Mfg. Co. 35@35.75
 National Specialty Mfg. Co. list Jan.
 1, 1901. 305

Tacks Brads, &c.—
 List Jan. 15, '99.
 Carpet Tacks, American 90@70@
 American Cut Tacks. 90@70@
 Swedes Iron Tacks. 90@70@
 Swedes Upholsterers' Tacks. 90@70@
 Gimp Tacks. 90@70@
 Lace Tacks. 90@70@
 Trimmers' Tacks. 90@70@
 Looking Glass Tacks. 70@105
 Bill Posters' and Railroad Tack. 90@70@
 Hungarian Nails. 80@155
 Common and Patent Brads. 80@105
 Trunk and Clout Nails. 80@105

Tanks, Oil—
 Emerald, S. S. & Co. 30-gal. \$3.20
 Emerald, S. S. & Co. 60-gal. \$4.00
 Queen City S. S. & Co. 30-gal. \$3.50
 Queen City S. S. & Co. 60-gal. \$4.35

Tapes, Measuring—
 American Asses' Skin. 40@10@305
 Patent Leather. 10@30@55
 Steel. 10@10@55
 Chesterman's. 25@25@55
 Eddy's Steel. 40@10@55
 Eddy's Steel. 384@384@55
 Keuffel & Esser Co. Steel and Metallic.
 Lower list, 1899. 355
 Larkin's Steel. 304@304@55
 Larkin's Metallic. 304@304@55

Thermometers—
 Tin Case. 80@10@30@10@55
Ties, Bale—Steel.
 Standard Wire. 80@10@55

Ties, Wall—
 Cleveland Wall Spring Co.:
 Galv. St-El 5 3/4 x 8 1/4 in. 4 1000. \$10.00
 Galv. Steel 5 3/4 x 8 1/4 in. 1000. \$11.00
 Galv. Steel 5 3/4 x 11 1/4 in. 1000. \$12.00
 Galv. Steel 5 3/4 x 15 1/4 in. 1000. \$14.00

Tinner's Shears, &c.—
 See Shears, Tinner's, &c.

Tinware—
 Stamped, Japanned and Pieced, sold
 very generally at net prices.

Tire Benders, Upsetters, &c.—
 See Benders and Upsetters, Tires.

Tobacco Cutters—
 See Cutters, Tobacco.

Tools—
Coopers'—
 L. & J. White. 30@90@55

Saw—
 Atkins' Cross Cut Saw Tools. 405
 Simonds' Improved. 384@384@55
 Simonds' Crescent. 255

Ship—
 L. & J. White. 255

Transom Lifters—
 See Lifters, Transom.

Traps—Game—
 Oneida Pattern. 75@55@75@10@55
 Newhouse. 45@45@55
 Hawley & Norton. 65@55@65@105
 Victor (Oneida Pattern). 75@75@55
 Star (Blake Pattern). 65@10@70@55

Mouse and Rat—
 Mouse, Wood, Choker, doz. holes. 84@90
 Mouse, Round or Square Wire. doz. \$0.85@1.00

American Pattern French Rat and Mouse
 Traps—
 No. 1, Detroit Marty Pattern, 9 doz. \$4.50; in 1/2 gro. lots, 9 doz. \$4.00
 No. 2, Detroit Marty Pattern, 9 doz. \$4.50; in 1/2 gro. lots, 9 doz. \$4.00
 Detroit Marty Pattern Mouse, 9 doz. \$4.50; in 1/2 gro. lots, 9 doz. \$4.00
 Diamond Joe Rat Traps. per doz. \$1.75
 Diamond Joe Rat Traps. per doz. \$1.00
 Marty French Rat and Mouse Traps (Genuine):
 No. 1, Rat, Each \$1.13 1/4; 9 doz. \$12.00
 No. 3, Rat, 9 doz. \$6.00; case of 72 \$9.25 doz.
 No. 3 1/2, Rat, 9 doz. \$1.75; case of 72 \$4.25 doz.
 No. 4, Mouse, 9 doz. \$3.50; case of 72 \$2.75 doz.
 No. 5, Mouse, 9 doz. \$3.75; case of 72 \$2.95

Schuyler's Rat Killer, No. 1, 9 gr. \$30.00; No. 2, 9 gr. \$30.00; Mouse, No. 3, \$18.00. 505

Fly—
 Balloon, Globe or Acme. doz. \$1.15@1.35; gro. \$10.50@11.00
 Harper, Champion or Paragon. doz. \$1.15@1.40; gro. \$15.00@15.50

Trimmers, Spoke—
 Bonney's Nos. 1 and 2. 405

Trowels—
 Distant Brick and Pointing. 305
 Distant Plastering. 355
 Distant "Standard Brand" and Ca-
 den Trowels. 405
 Never-Break Steel Garden Trowels. 9 gr. \$7.00

Peace's Plastering. 304
Rose Brick and Plastering. 35@55
Woodrough & McParlin, Plastering. 354

Trucks, Warehouse, &c.—
 R. & L. Block Co.'s list. 505
 Dally Stove Trucks, Improved pattern. 9 doz. \$31.00
 Model Stove Trucks. 9 doz. \$15.50

Tubs, Wash—
 No. 1 2 3
 Galvanized, per doz. \$5.00 5.50 6.00
 Galvanized Wash Tubs (S. & Co.):
 No. 1 3 10 20 30
 Per doz. \$5.25 6.00 6.75 7.25 8.00

Twine—
 Small lots f. o. b. New York, Phila-
 delphia or Boston.
 White Sisal, 500 ft. to lb. per lb. 8@34c
 Standard, 500 ft. to lb. per lb. 8@34c
 Manila, 600 ft. to lb. per lb. 10@
 104c
 Pure Manila, 650 ft. to lb. per lb. 114
 @114c

For carloads deduct 1/4c per lb.
Miscellaneous—
 No. 1 1/4 and 1/2 lb. Balls. 25c 24c
 No. 2 1/4 and 1/2 lb. balls. 18c 20c
 No. 3 1/4 and 1/2 lb. Balls. 16c 18c
 No. 4 1/4 and 1/2 lb. Balls 15 1/2c 17 1/2c
 No. 5 1/4 and 1/2 lb. Balls. 15c 17c
 Chalk Line, Cotton, 1/2 lb. Balls. 22@22 1/2c
 Cotton Mops, 6, 9, 12 and 15 lb. to
 doz. 7@3c
 Cotton Wrapping, 6 Balls to lb.
 according to quality. 104c@17c
 American 3-Ply Hemp, 1/4 and 1/2 lb.
 Balls. 12@13c
 American 3 Ply Hemp, 1-lb. Balls. 12@13c

India 3-Ply Hemp, 1/4 and 1/2 lb. Balls (Spring Twine). 34c
India 3-Ply Hemp, 1-lb. Balls. 34c
India 3-Ply Hemp, 1 1/2-lb. Balls. 7c
5, 5, 1 and 5-Ply Jute, 1/2-lb. Balls. 94@10c
Mason Line, Linen, 1/2-lb. Balls. 15c
No. 26 Mattress, 1/4 and 1/2 lb. Balls. 57c
Wool. 70

Vises—
 Solid Box. 505

Parallel—
 Athol Machine Co.:
 Simpson's Adjustable. 405
 Standard. 405
 Amateur. 355
 Bonney's. 405
 Fisher & Norris Double Screw. 15@105
 Hollands'. 405
 Machinists'. 405
 Keystone. 65@55
 Lewis Tool Co. 30@305
 Massey's Perfect. 15@205
 Massey's. 405
 Clincher. 405
 Combination, Quick Adj. 405
 Woodworker's. 15@305
 Merrill's. 305
 Miller's Falls. low list 105
 Parker's:
 Victor. 20@255
 Regulars. 20@255
 Vulcan. 40@455
 Combination Pipe. 55@605
 Prentiss. 30@255
 Sargent's. 405
 Simpson's Adjustable. 405
 Sneliker's X. 1. 30@255
 Stephens'. 30@255
 Van, W. & W. Hdw. Co. 405

Saw Filers—
 Bonney's No. 1, \$13; No. 3, \$16. 505
 Distant's D S Clamp and Guide, 9 doz. \$30.
 Reading. 40@105
 Wentworth's Rubber Jaw, Nos. 1, 2 and 3. 30@105

Miscellaneous—
 Signal & Keeler Combination Pipe
 Vise. 505
 Parker's Combination Pipe:
 87 Series. 605
 187 Series. 60@55
 No. 870. 405

Wads—Price Per M.
 B. E. 11 up. 60c
 B. E. 9 and 10. 70c
 B. E. 8. 80c
 B. E. 7. 80c
 P. E. 11 up. \$1.00
 P. E. 9 and 10. 1.25
 P. E. 8. 1.60
 P. E. 7. 1.60
 Ely's B. E. 11 and larger. \$1.70@1.75
 Ely's P. E. 11 to 20. \$3.00@3.55

Wagon Jacks—
 See Jacks, Wagon.

Ware, Hollow—
 Aluminum—
 S. S. & Co. Reduced List. 405

Cast Iron, Hollow—
 Stove Hollow Ware:
 Ground. 655
 Unground. 705
 White Enamelled Ware:
 Main Kettles. 75@10@805
 Covered Ware:
 Tinned and Turned. 40@10@10@10@55
 Enamelled and Platin. 50@50@10@55
 See also Pots, Glue.

Enamelled—
 Agate Nickel Steel Ware, list July '99. 855
 Granite Ware, list Jan. 1, '94, revised
 Jan. 2, '95. 40@105
 Second Quality, Agate Nickel Steel. 305
 Second Quality, Granite. 70@10@105
 Iron Clad Ware. 70@105
 Never Break Enamelled. 50@50@105

Tea Kettles—
 Galvanized Tea Kettles:
 Inch. 6 7 8 9
 Each. 15c 50c 55c 65c

Steel Hollow Ware.
 Avery Spiders & Griddles. 65@65@55
 Avery Kettles. 605
 Porcelain. 50@50@105
 Never Break Spiders and Griddles. 65@55
 Never Break Kettles. 605
 Solid Steel Spiders & Griddles. 65@55
 Solid Steel Kettles. 605
 Solid Steel Ware, Enamelled. 60@55

Washboards—
 Solid Zinc. 9 doz
 Crescent, family size, bent frame. \$3.00
 Red Star, laundry size, stationary
 protector. 44.35
 Double Zinc Surface:
 Saginaw Globe, family size, station-
 ary protector. 32.65
 Wilson, family size, bent frame. 32.75
 Single Zinc Surface:
 Saginaw Globe, family size, open
 back perforated. 39.40
 Saginaw Globe, protector, family
 size, ventilated back. 39.50
 Wilson, bent frame family size
 ventilated back. 32.25

**Washers—
Leather, Axle—**

Solid.....35¢@55¢10¢
 Patent.....35¢10¢@55¢20¢
 Coll: 1/4 1 1 1/4 1 3/4 1 1/2
 10c 11c 12c 13c per 100

Iron or Steel—

Size bolt.... 5-16 3/4 1/2 5/8 3/4
 Washers.....\$5.30 4.50 3.00 2.50 2.00
 In lots less than one keg add 1/4c per
 lb., 5-lb. boxes add 1/4c to list.

Cast Washers—

Over 1/4 inch, barrel lots, per lb.....
 1 1/4¢@1 1/2¢

Washer Cutters—

See Cutters, Washer.

Washing Machines—

See Machines, Washing.

Water Coolers—

See Coolers, Water.

Wedges—

Oil Finish.....lb., 2.90@3.10c

Weights, Sash

Per ton, f.o.b. factory.....\$19.00@22.50
 Some Foundries make price \$1@22
 lower.

Well Buckets, Galvanized

See Pails, Galvanized.

Wheels Well—

8-in., \$1.65@1.75; 10-in., \$2.00@2.10;
 12-in., \$2.50@2.75; 14-in., \$3.25@3.40

Wire and Wire Goods—

Brt. and Ann., 6 to 9, 70¢@10¢@70¢@5¢
 Brt. and Ann., 10 to 18, 75¢@7¢@10¢
 Brt. and Ann., 19 to 28, 75¢@7¢@10¢
 Brt. and Ann., 27 to 36.....

175¢@10¢@70¢@10¢@5¢
 Cop'd and Galv., 6 to 9.....70¢@70¢@5¢
 Cop'd and Galv., 10 to 18.....

70¢@70¢@10¢
 Cop'd and Galv., 19 to 28.....

75¢@70¢@10¢
 Cop'd and Galv., 27 to 36.....

75¢@70¢@10¢
 Tinned, 6 to 16.....

70¢@70¢@10¢
 Tinned, 15 to 18.....

70¢@70¢@10¢
 Tinned, 19 to 28.....

65¢@70¢@10¢
 Tinned, 27 to 36.....

70¢@70¢@10¢
 Annealed Wire on Spools.....

70¢@70¢@10¢
 Brass and Copper Wire on Spools.....

60¢@50¢@10¢
 Brass, list Feb. 26, '98.....

35¢

Copper, list Feb. 26, '98.....15¢

Cast Steel Wire.....50¢

Stub's Steel Wire.....\$6.00 to \$2.40¢

Wire Cloth Line, see Lines

Wire Picture Cord, see Cord

Bright Wire Goods—

List April 1, 1901.....85¢@10¢

Wire Cloth and Netting—

Galvanized Wire Netting.....35¢@85¢5¢

Painted Screen Cloth per 100 ft.....

\$1.00@1.10

Light Hardware Grade:

2-3 Mesh, Plain (Sc. list) sq. ft.....

2-8 Mesh, Galv. (Sc. list) sq. ft.....

2-8 Mesh, Galv. (Sc. list) sq. ft.....

Wire Barb—See Trade Report.**Wire, Ro e—See Rope, Wire.****Wrenches—**

Agricultural.....70¢@10¢@75¢5¢

Case lots.....75¢@10¢

Acme.....60¢@10¢

Alligator.....70¢

Baxter's S.....80¢@10¢

Roll Doz.....70¢

Cos's Genuine.....40¢@10¢@5¢5¢

Cos's "Mechanics".....40¢@10¢@5¢5¢

Benis & Cull.....35¢@5¢

Adjustable S.....

Adjustable S Pipe.....40¢

Brigg's Pattern.....30¢@10¢

Combination Black.....40¢@5¢

Combination Bright.....55¢

Cylinder or Gas Pipe.....45¢

Extra Heavy.....45¢

Merrick's Pattern.....50¢

No. 3 Pipe, Bright.....55¢

Bindley Automatic.....30¢

Boardman's.....40¢@10¢

Donohue's Engineer.....50¢@10¢

Ham Pocket.....30¢

Hercules.....70¢

Knife Handle, Machinists' (W. & B.).....

Case lots.....50¢@10¢

Less than case lots.....50¢@5¢

Improved Pipe (W. & B.).....

Solid Handles, P. S. & W.....50¢@10¢

Triumph.....60¢@10¢

Wrought Goods—

Staples, Hooks, &c., list March 17

'98.....85¢@10¢@85¢5¢

Yokes, Neck—

Covert Saddlery Works, Trimmer 1.60@3¢

Covert Saddlery Works, Neck Yoke

Centers.....70¢

Yokes, Ox, and Ox Bows—

Fort Madison's Farmers & Freighters'..

list not

Zinc—

Sheet.....lb 6 1/4¢@7¢

PAINTS, OILS AND COLORS.—Wholesale Prices.**White Lead, Zinc, &c.**

Lead, Foreign white, in Oil.....7 1/4¢@9 1/4¢

Lead, American White, in Oil:

Lots of 500 lb or over.....6 1/4¢

Lots less than 500 lb.....7¢

Lead, White, in oil, 25 lb tin

pails, add to keg price.....1 1/4¢

Lead, White, in oil, 12 1/2 lb tin

pails, add to keg price.....1¢

Lead, White, in oil, 1 to 5 lb as

sorted tins, add to keg price.....1 1/4¢

Lead White, Dry in bbls.....5 1/4¢@6¢

Lead, American, Terms: On lots of 500

lbs. and over, 60 days, or 2% for cash if

paid in 15 days from date of invoice.

Zinc, American, dry.....7 1/4¢@4 1/4¢

Zinc, Paris, Red Seal, dry.....8 1/4¢

Zinc, Paris, Green Seal, dry.....9 1/4¢

Zinc, Antwerp Red Seal, dry.....8 1/4¢

Zinc, Antwerp, Green Seal, dry.....7 1/4¢

Zinc, V. M. French, in Poppy Oil,

Green Seal:

Lots of 1 ton and over.....12¢@12 1/4¢

Lots less than 1 ton.....12 1/4¢@12 3/4¢

Zinc, V. M. French, in Poppy Oil,

Red Seal:

Lots of 1 ton and over.....10 1/4¢@11 1/4¢

Lots less than 1 ton.....11 1/4¢@11 3/4¢

Discounts.—V. M. French Zinc.—Dis-

counts to buyers of 10 bbl. lots of one or

assorted grades, 1%: 25 bbls., 2%: 50

bbls., 4%.

Dry Colors.

Black, Carbon.....7 1/4¢@8¢@20¢

Black, Drop, Amer.....4¢@7¢

Black, Drop, Eng.....7¢@11¢

Black, Ivory.....12¢@21¢

Lamp, Com.....4 1/4¢@6¢

Blue, Celestial.....7 1/4¢@8¢

Blue, Chinese.....8¢@35¢

Blue, Prussian.....23¢@34¢

Blue, Ultramarine.....4¢@20¢

Brown, Spanish.....1 1/4¢@1¢

Brown, Vandyke, Amer.....1 1/4¢@2¢

Brown, Vandyke, Foreign.....8 1/4¢@3 1/4¢

Carmine, No. 40.....7 1/4¢@2 1/4¢

Green, Chrome, ordinary.....5¢@6 1/4¢

Green, Chrome, pure.....16¢@20¢

Lead, Red, bbls 1/2 bbls. and kegs:

Lots 500 lb or over.....6¢

Lots less than 500 lb.....6 1/4¢

Litharge, bbls 1/2 bbls. and kegs:

Lots 500 lb or over.....6¢

Lots less than 500 lb.....6 1/4¢

Other, French Washed.....\$1.35@2.50

Other, Dutch Washed.....4 1/4¢@5¢

Other, American.....\$10.00@15.00

Orange Mineral, English.....\$8¢@11 1/4¢

Orange Mineral, French.....11 1/4¢@11 1/2¢

Orange Mineral, German.....8 1/4¢@9 1/4¢

Orange Mineral, American.....8¢@8 1/4¢

Red, Indian, English.....4 1/4¢@8 1/4¢

Red, Indian, American.....8¢@3 1/4¢

Red, Turkey, English.....4¢@6¢

Red, Tuscan, English.....7¢@10¢

Red, Venetian, Amer.....\$100@1.75

Red, Venetian, English.....\$1.50@3.00

Sienna, Italian, Burnt and

Powdered.....\$3¢@7 1/4¢

Sienna, Ital., Raw, Powd.....\$3¢@7 1/4¢

Sienna, American, Raw.....1 1/4¢@2¢

Sienna, American, Burnt and

Powdered.....\$2¢@1 1/4¢

Talc, French.....\$100@1.25@1.50

Talc, American.....90¢@1.10

Terra Alba, French.....\$100@.95@1.00

Terra Alba, English.....95¢@1.00

Terra Alba, American No. 1.....85¢

Terra Alba, American No. 2.....45¢@50¢

Umber, Turkey, Raw & Powd.....2 1/4¢@3 1/4¢

Umber, Bat, Amer.....1 1/4¢@2¢

Umber, Raw, Amer.....1 1/4¢@2¢

Yellow, Chrome.....10¢@25¢

Vermilion, American Lead.....10¢@40¢

Vermilion, Quicksilver, bulk.....72¢

Vermilion, Quicksilver, bags.....79¢

Vermilion, English, Import.....80¢@95¢

Vermilion, Chinese.....\$1.05@1.20

Colors in Oil.

Black, Lampblack.....12¢@14¢

Blue, Chinese.....36¢@40¢

Blue, Prussian.....32¢@35¢

Blue, Ultramarine.....13¢@16¢

Brown, Vandyke.....9 1/4¢@13¢

Green, Chrome.....10¢@12¢

Green, Paris.....9 1/4¢@13¢

Sienna, Raw.....10¢@13¢

Sienna, Burnt.....10¢@13¢

Umber, Raw.....9 1/4¢@13¢

Umber, Burnt.....9 1/4¢@13¢

Miscellaneous.

Barytes, Foreign, # ton.....\$10.00@21.00

Barytes, Amer. floated.....19.00@20.00

Barytes, Crude.....9.00@10.00

Chalk, in bulk.....\$2.00@3.00

Chalk, in bbls.....\$100@

China Clay, English.....\$100@17.50

Cobalt, Oxide.....\$100@2.50

Whiting, Common, # 100 lb.....40¢@.65

Whiting, Gliders.....45¢@.65

Whiting, extra Gliders......55¢@.65

Putty.

In bulk.....\$1.60

In bladders.....2.25

In cans, 12 lb to 25 lb.....3.25

In cans, 1 lb to 5 lb.....3.25

Spirits Turpentine.

In Southern bbls.....35 1/4¢@36¢

In machine bbls.....36¢@36 1/4¢

Glue.

Low Grade.....7 1/4¢@9¢@12¢

Cabinet.....11 1/4¢@12¢

Medium White.....14 1/4¢@16 1/4¢

Extra White.....18¢@23¢

French.....12¢@40¢

Irish.....13 1/4¢@16¢

Animal, Fish and Veget-

table Oils.

Linseed, City, raw.....7 gal. 61¢@62¢

Linseed, City, boiled.....63¢@64¢

Linseed, Sate and West'n, raw.....60¢@61¢

Linseed, raw Calcutta seed.....55¢

Lard, Prime.....65¢@66¢

Lard, Extra No. 1.....60¢@62¢

Lard, No. 1.....45¢@44¢

Cotton-seed, Crude.....31¢@32¢

Cotton-seed, Summer Yellow,

prime.....34 1/4¢@36¢

Cotton-seed Summer Yellow,

off grades.....33¢@33 1/4¢

Sperm, Crude.....

Sperm, Natural Spring.....

Sperm, Bleached Spring.....

Sperm, Natural Winter.....

Sperm, Bleached Winter.....

Whale, Crude.....

Whale, Natural Winter.....

Whale, Bleached Winter.....

Menhaden, Crude, Sound.....

Menhaden, Light Strained.....

CURRENT METAL PRICES.

MAY 29, 1901.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron: Duty, Round, 0.65 lb. Square, 0.55 lb. 1 to 1 1/2 in. round and square \$ 1.75 @ 1.85

Refined Iron: 1 to 1 1/2 in. round and square \$ 1.80 @ 1.90

1 1/2 to 4 in. x 1/2 to 1 in. \$ 1.95 @ 2.00

Rods—1/2 and 11-16 round and square. \$ 2.15 @ 2.25

Angles: 3 in. x 1/2 in. and larger \$ 2.10

3 1/2 to 5 in. x 3/4 in. \$ 2.10

1 1/2 to 3 1/2 in. x 3/4 in. and thicker \$ 2.10

1 to 1 1/2 in. x 3/4 in. \$ 2.30

1/2 to 1 1/2 in. \$ 2.40

3/4 to 1 1/2 in. \$ 2.50

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1/2 to 1 1/2 in. \$ 2.50

Sheet and Bolt—

January 19, 1900.

Net.

Prices, in cents per pound.

Sheet 30 x 60.

Not wider than	Not longer than	And longer than	1/4 in. & over, galb. sheet, 30 x 60 and heavier.	3/8 in. to 1/2 in. 30 x 60.	1/2 in. to 3/4 in. 30 x 60.	3/4 in. to 1 in. 30 x 60.	1 in. to 1 1/4 in. 30 x 60.	1 1/4 in. to 1 1/2 in. 30 x 60.	1 1/2 in. to 1 3/4 in. 30 x 60.	1 3/4 in. to 2 in. 30 x 60.	2 in. to 2 1/4 in. 30 x 60.	2 1/4 in. to 2 1/2 in. 30 x 60.	2 1/2 in. to 2 3/4 in. 30 x 60.	2 3/4 in. to 3 in. 30 x 60.	3 in. to 3 1/4 in. 30 x 60.	3 1/4 in. to 3 1/2 in. 30 x 60.	3 1/2 in. to 3 3/4 in. 30 x 60.	3 3/4 in. to 4 in. 30 x 60.	4 in. to 4 1/4 in. 30 x 60.	4 1/4 in. to 4 1/2 in. 30 x 60.	4 1/2 in. to 4 3/4 in. 30 x 60.	4 3/4 in. to 5 in. 30 x 60.	5 in. to 5 1/4 in. 30 x 60.	5 1/4 in. to 5 1/2 in. 30 x 60.	5 1/2 in. to 5 3/4 in. 30 x 60.	5 3/4 in. to 6 in. 30 x 60.	6 in. to 6 1/4 in. 30 x 60.	6 1/4 in. to 6 1/2 in. 30 x 60.	6 1/2 in. to 6 3/4 in. 30 x 60.	6 3/4 in. to 7 in. 30 x 60.	7 in. to 7 1/4 in. 30 x 60.	7 1/4 in. to 7 1/2 in. 30 x 60.	7 1/2 in. to 7 3/4 in. 30 x 60.	7 3/4 in. to 8 in. 30 x 60.	8 in. to 8 1/4 in. 30 x 60.	8 1/4 in. to 8 1/2 in. 30 x 60.	8 1/2 in. to 8 3/4 in. 30 x 60.	8 3/4 in. to 9 in. 30 x 60.	9 in. to 9 1/4 in. 30 x 60.	9 1/4 in. to 9 1/2 in. 30 x 60.	9 1/2 in. to 9 3/4 in. 30 x 60.	9 3/4 in. to 10 in. 30 x 60.	10 in. to 10 1/4 in. 30 x 60.	10 1/4 in. to 10 1/2 in. 30 x 60.	10 1/2 in. to 10 3/4 in. 30 x 60.	10 3/4 in. to 11 in. 30 x 60.	11 in. to 11 1/4 in. 30 x 60.	11 1/4 in. to 11 1/2 in. 30 x 60.	11 1/2 in. to 11 3/4 in. 30 x 60.	11 3/4 in. to 12 in. 30 x 60.	12 in. to 12 1/4 in. 30 x 60.	12 1/4 in. to 12 1/2 in. 30 x 60.	12 1/2 in. to 12 3/4 in. 30 x 60.	12 3/4 in. to 13 in. 30 x 60.	13 in. to 13 1/4 in. 30 x 60.	13 1/4 in. to 13 1/2 in. 30 x 60.	13 1/2 in. to 13 3/4 in. 30 x 60.	13 3/4 in. to 14 in. 30 x 60.	14 in. to 14 1/4 in. 30 x 60.	14 1/4 in. to 14 1/2 in. 30 x 60.	14 1/2 in. to 14 3/4 in. 30 x 60.	14 3/4 in. to 15 in. 30 x 60.	15 in. to 15 1/4 in. 30 x 60.	15 1/4 in. to 15 1/2 in. 30 x 60.	15 1/2 in. to 15 3/4 in. 30 x 60.	15 3/4 in. to 16 in. 30 x 60.	16 in. to 16 1/4 in. 30 x 60.	16 1/4 in. to 16 1/2 in. 30 x 60.	16 1/2 in. to 16 3/4 in. 30 x 60.	16 3/4 in. to 17 in. 30 x 60.	17 in. to 17 1/4 in. 30 x 60.	17 1/4 in. to 17 1/2 in. 30 x 60.	17 1/2 in. to 17 3/4 in. 30 x 60.	17 3/4 in. to 18 in. 30 x 60.	18 in. to 18 1/4 in. 30 x 60.	18 1/4 in. to 18 1/2 in. 30 x 60.	18 1/2 in. to 18 3/4 in. 30 x 60.	18 3/4 in. to 19 in. 30 x 60.	19 in. to 19 1/4 in. 30 x 60.	19 1/4 in. to 19 1/2 in. 30 x 60.	19 1/2 in. to 19 3/4 in. 30 x 60.	19 3/4 in. to 20 in. 30 x 60.	20 in. to 20 1/4 in. 30 x 60.	20 1/4 in. to 20 1/2 in. 30 x 60.	20 1/2 in. to 20 3/4 in. 30 x 60.	20 3/4 in. to 21 in. 30 x 60.	21 in. to 21 1/4 in. 30 x 60.	21 1/4 in. to 21 1/2 in. 30 x 60.	21 1/2 in. to 21 3/4 in. 30 x 60.	21 3/4 in. to 22 in. 30 x 60.	22 in. to 22 1/4 in. 30 x 60.	22 1/4 in. to 22 1/2 in. 30 x 60.	22 1/2 in. to 22 3/4 in. 30 x 60.	22 3/4 in. to 23 in. 30 x 60.	23 in. to 23 1/4 in. 30 x 60.	23 1/4 in. to 23 1/2 in. 30 x 60.	23 1/2 in. to 23 3/4 in. 30 x 60.	23 3/4 in. to 24 in. 30 x 60.	24 in. to 24 1/4 in. 30 x 60.	24 1/4 in. to 24 1/2 in. 30 x 60.	24 1/2 in. to 24 3/4 in. 30 x 60.	24 3/4 in. to 25 in. 30 x 60.	25 in. to 25 1/4 in. 30 x 60.	25 1/4 in. to 25 1/2 in. 30 x 60.	25 1/2 in. to 25 3/4 in. 30 x 60.	25 3/4 in. to 26 in. 30 x 60.	26 in. to 26 1/4 in. 30 x 60.	26 1/4 in. to 26 1/2 in. 30 x 60.	26 1/2 in. to 26 3/4 in. 30 x 60.	26 3/4 in. to 27 in. 30 x 60.	27 in. to 27 1/4 in. 30 x 60.	27 1/4 in. to 27 1/2 in. 30 x 60.	27 1/2 in. to 27 3/4 in. 30 x 60.	27 3/4 in. to 28 in. 30 x 60.	28 in. to 28 1/4 in. 30 x 60.	28 1/4 in. to 28 1/2 in. 30 x 60.	28 1/2 in. to 28 3/4 in. 30 x 60.	28 3/4 in. to 29 in. 30 x 60.	29 in. to 29 1/4 in. 30 x 60.	29 1/4 in. to 29 1/2 in. 30 x 60.	29 1/2 in. to 29 3/4 in. 30 x 60.	29 3/4 in. to 30 in. 30 x 60.	30 in. to 30 1/4 in. 30 x 60.	30 1/4 in. to 30 1/2 in. 30 x 60.	30 1/2 in. to 30 3/4 in. 30 x 60.	30 3/4 in. to 31 in. 30 x 60.	31 in. to 31 1/4 in. 30 x 60.	31 1/4 in. to 31 1/2 in. 30 x 60.	31 1/2 in. to 31 3/4 in. 30 x 60.	31 3/4 in. to 32 in. 30 x 60.	32 in. to 32 1/4 in. 30 x 60.	32 1/4 in. to 32 1/2 in. 30 x 60.	32 1/2 in. to 32 3/4 in. 30 x 60.	32 3/4 in. to 33 in. 30 x 60.	33 in. to 33 1/4 in. 30 x 60.	33 1/4 in. to 33 1/2 in. 30 x 60.	33 1/2 in. to 33 3/4 in. 30 x 60.	33 3/4 in. to 34 in. 30 x 60.	34 in. to 34 1/4 in. 30 x 60.	34 1/4 in. to 34 1/2 in. 30 x 60.	34 1/2 in. to 34 3/4 in. 30 x 60.	34 3/4 in. to 35 in. 30 x 60.	35 in. to 35 1/4 in. 30 x 60.	35 1/4 in. to 35 1/2 in. 30 x 60.	35 1/2 in. to 35 3/4 in. 30 x 60.	35 3/4 in. to 36 in. 30 x 60.	36 in. to 36 1/4 in. 30 x 60.	36 1/4 in. to 36 1/2 in. 30 x 60.	36 1/2 in. to 36 3/4 in. 30 x 60.	36 3/4 in. to 37 in. 30 x 60.	37 in. to 37 1/4 in. 30 x 60.	37 1/4 in. to 37 1/2 in. 30 x 60.	37 1/2 in. to 37 3/4 in. 30 x 60.	37 3/4 in. to 38 in. 30 x 60.	38 in. to 38 1/4 in. 30 x 60.	38 1/4 in. to 38 1/2 in. 30 x 60.	38 1/2 in. to 38 3/4 in. 30 x 60.	38 3/4 in. to 39 in. 30 x 60.	39 in. to 39 1/4 in. 30 x 60.	39 1/4 in. to 39 1/2 in. 30 x 60.	39 1/2 in. to 39 3/4 in. 30 x 60.	39 3/4 in. to 40 in. 30 x 60.	40 in. to 40 1/4 in. 30 x 60.	40 1/4 in. to 40 1/2 in. 30 x 60.	40 1/2 in. to 40 3/4 in. 30 x 60.	40 3/4 in. to 41 in. 30 x 60.	41 in. to 41 1/4 in. 30 x 60.	41 1/4 in. to 41 1/2 in. 30 x 60.	41 1/2 in. to 41 3/4 in. 30 x 60.	41 3/4 in. to 42 in. 30 x 60.	42 in. to 42 1/4 in. 30 x 60.	42 1/4 in. to 42 1/2 in. 30 x 60.	42 1/2 in. to 42 3/4 in. 30 x 60.	42 3/4 in. to 43 in. 30 x 60.	43 in. to 43 1/4 in. 30 x 60.	43 1/4 in. to 43 1/2 in. 30 x 60.	43 1/2 in. to 43 3/4 in. 30 x 60.	43 3/4 in. to 44 in. 30 x 60.	44 in. to 44 1/4 in. 30 x 60.	44 1/4 in. to 44 1/2 in. 30 x 60.	44 1/2 in. to 44 3/4 in. 30 x 60.	44 3/4 in. to 45 in. 30 x 60.	45 in. to 45 1/4 in. 30 x 60.	45 1/4 in. to 45 1/2 in. 30 x 60.	45 1/2 in. to 45 3/4 in. 30 x 60.	45 3/4 in. to 46 in. 30 x 60.	46 in. to 46 1/4 in. 30 x 60.	46 1/4 in. to 46 1/2 in. 30 x 60.	46 1/2 in. to 46 3/4 in. 30 x 60.	46 3/4 in. to 47 in. 30 x 60.	47 in. to 47 1/4 in. 30 x 60.	47 1/4 in. to 47 1/2 in. 30 x 60.	47 1/2 in. to 47 3/4 in. 30 x 60.	47 3/4 in. to 48 in. 30 x 60.	48 in. to 48 1/4 in. 30 x 60.	48 1/4 in. to 48 1/2 in. 30 x 60.	48 1/2 in. to 48 3/4 in. 30 x 60.	48 3/4 in. to 49 in. 30 x 60.	49 in. to 49 1/4 in. 30 x 60.	49 1/4 in. to 49 1/2 in. 30 x 60.	49 1/2 in. to 49 3/4 in. 30 x 60.	49 3/4 in. to 50 in. 30 x 60.	50 in. to 50 1/4 in. 30 x 60.	50 1/4 in. to 50 1/2 in. 30 x 60.	50 1/2 in. to 50 3/4 in. 30 x 60.	50 3/4 in. to 51 in. 30 x 60.	51 in. to 51 1/4 in. 30 x 60.	51 1/4 in. to 51 1/2 in. 30 x 60.	51 1/2 in. to 51 3/4 in. 30 x 60.	51 3/4 in. to 52 in. 30 x 60.	52 in. to 52 1/4 in. 30 x 60.	52 1/4 in. to 52 1/2 in. 30 x 60.	52 1/2 in. to 52 3/4 in. 30 x 60.	52 3/4 in. to 53 in. 30 x 60.	53 in. to 53 1/4 in. 30 x 60.	53 1/4 in. to 53 1/2 in. 30 x 60.	53 1/2 in. to 53 3/4 in. 30 x 60.	53 3/4 in. to 54 in. 30 x 60.	54 in. to 54 1/4 in. 30 x 60.	54 1/4 in. to 54 1/2 in. 30 x 60.	54 1/2 in. to 54 3/4 in. 30 x 60.	54 3/4 in. to 55 in. 30 x 60.	55 in. to 55 1/4 in. 30 x 60.	55 1/4 in. to 55 1/2 in. 30 x 60.	55 1/2 in. to 55 3/4 in. 30 x 60.	55 3/4 in. to 56 in. 30 x 60.	56 in. to 56 1/4 in. 30 x 60.	56 1/4 in. to 56 1/2 in. 30 x 60.	56 1/2 in. to 56 3/4 in. 30 x 60.	56 3/4 in. to 57 in. 30 x 60.	57 in. to 57 1/4 in. 30 x 60.	57 1/4 in. to 57 1/2 in. 30 x 60.	57 1/2 in. to 57 3/4 in. 30 x 60.	57 3/4 in. to 58 in. 30 x 60.	58 in. to 58 1/4 in. 30 x 60.	58 1/4 in. to 58 1/2 in. 30 x 60.	58 1/2 in. to 58 3/4 in. 30 x 60.	58 3/4 in. to 59 in. 30 x 60.	59 in. to 59 1/4 in. 30 x 60.	59 1/4 in. to 59 1/2 in. 30 x 60.	59 1/2 in. to 59 3/4 in. 30 x 60.	59 3/4 in. to 60 in. 30 x 60.	60 in. to 60 1/4 in. 30 x 60.	60 1/4 in. to 60 1/2 in. 30 x 60.	60 1/2 in. to 60 3/4 in. 30 x 60.	60 3/4 in. to 61 in. 30 x 60.	61 in. to 61 1/4 in. 30 x 60.	61 1/4 in. to 61 1/2 in. 30 x 60.	61 1/2 in. to 61 3/4 in. 30 x 60.	61 3/4 in. to 62 in. 30 x 60.	62 in. to 62 1/4 in. 30 x 60.	62 1/4 in. to 62 1/2 in. 30 x 60.	62 1/2 in. to 62 3/4 in. 30 x 60.	62 3/4 in. to 63 in. 30 x 60.	63 in. to 63 1/4 in. 30 x 60.	63 1/4 in. to 63 1/2 in. 30 x 60.	63 1/2 in. to 63 3/4 in. 30 x 60.	63 3/4 in. to 64 in. 30 x 60.	64 in. to 64 1/4 in. 30
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